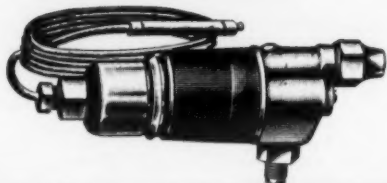


"When the Temperature Soars... DEPEND ON *Harry Alter* FOR FAST SERVICE"

Harry Alter Recommends

DETROIT Valves



THE HARRY ALTER COMPANY
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Detroit Lubricator Company,
Detroit, Michigan.
Gentlemen: Several years ago when we entered the refrigeration supply field, we started featuring DETROIT valves and controls and we have been at it ever since. After having sold many thousands we can truthfully say that yours is a quality product, well engineered and built to last. We are proud to continue pushing Detroit Controls.

THE HARRY ALTER COMPANY
By *Harry Alter*

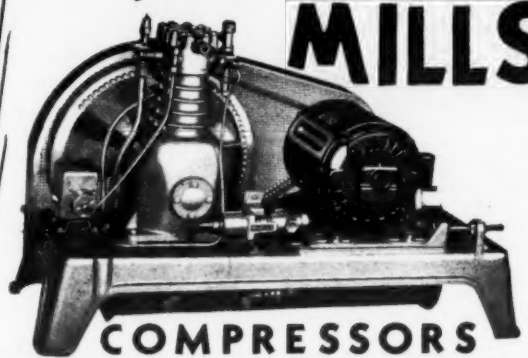
THE HARRY ALTER COMPANY
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Mills Specialty Company,
Chicago, Illinois.
Gentlemen: In just a few short weeks Mills compressors and condensing units have found a definite place in the commercial refrigeration field. Dealers and service companies are anxious to get the Mills products. They have learned of the high quality built into Mills products. We predict an amazing demand for Mills equipment because every installation makes a booster--and because they'll run and run and run without any effort.

THE HARRY ALTER COMPANY
By *Harry Alter*

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MILLS



COMPRESSORS

Harry Alter Recommends

FEDDERS Coils

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Pedders Mfg. Company
Buffalo, New York
Gentlemen: The old reliable Fedders line is one of our standbys. Many of our customers will have nothing else but. Most service men know from experience that all Fedders products are built right and that is why we are happy to act as a Fedders distributor.

THE HARRY ALTER COMPANY
By *Harry Alter*

7 COMPLETE WAREHOUSES to Serve You On REFRIGERATION SUPPLIES

Harry Alter warehouses in New York, Cleveland, St. Louis, and Chicago carry most complete stocks. Practically every article illustrated in our big 96 page catalog can be shipped out of these branch houses the same day. You can depend on us for fast shipment of your orders for refrigeration supplies.

LOW PRICES TO ALL

We are a one price house—but our prices are always low. In our big 96 page catalog issued four times a year we plainly print the net cost to the trade of every article of the 8,000 illustrated. Every customer large or small gets the same price and the same speedy service. We have no secret "deals" or underground rebates. Instead we play the game right out in the open fair and above board both with the manufacturer whom we represent and the service company to whom we sell.

WE SELL THE TRADE ONLY

For many years we have observed a most rigid "dealer protection" policy. We positively will not accept orders from consumers, janitors or any one not engaged in the refrigeration business either as a dealer or service company. Our catalog mailing list is carefully scrutinized to be sure that it is sent only to the legitimate trade. Even strangers visiting our city order counters are asked to identify themselves before our counter men will fill their orders. Ours is a sound and fair policy of complete protection.



SEND FOR THIS CATALOG

By request we will send you this large 96 page catalog showing America's leading line of refrigeration supplies and parts for all makes. This catalog illustrates controls, fittings, compressors and coils for commercial and air conditioning as well as replacement parts and accessories for domestic refrigeration. Write today on your letterhead.

Harry Alter Recommends

DOLECO COLD PLATES

THE HARRY ALTER COMPANY
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Dole Refrigerating Company
Chicago, Illinois.
Gentlemen: When we took on the Doleco Cold Plate line we had no idea that sales would be as great as they have been. The refrigeration industry is finding wider uses for Doleco Cold Plates daily, and that's not surprising. So we are happy to say every man in our organization has been told to urge the installation of Doleco Cold Plates on every job.

THE HARRY ALTER COMPANY
By *Harry Alter*

Harry Alter Recommends

ROTARY SEAL

THE HARRY ALTER COMPANY
1728 SO. MICHIGAN AVE. • CHICAGO • PHONE CALUMET 7139

Rotary Seal Company,
Chicago, Illinois.
Gentlemen: There is a wide spread and increasing demand for the "Rotary Seal", because it's a time saver and it does the job. The performance record is amazing--because of the absence of trouble or complaints we have sold thousands of them. So we unhesitatingly urge the use of "Rotary Seals" for replacement purposes.

THE HARRY ALTER COMPANY
By *Harry Alter*

Harry Alter Recommends

IMPERIAL

THE HARRY ALTER COMPANY
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Imperial Brass Manufacturing Company,
Chicago, Illinois.
Gentlemen: We carry thousands of dollars of Imperial fittings in our stocks and it's a wonderful investment. You put honest value and true quality in every single Imperial part. That's why we are proud to specialize and recommend Imperial products.

THE HARRY ALTER COMPANY
By *Harry Alter*

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ST. LOUIS BRANCH
2315 Washington Street

CHICAGO BRANCHES

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North—4611 N. Western Avenue

West—5217 W. Madison Street

South—7821 Stony Island Avenue

REFRIGERATION NEWS

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DETROIT, MICHIGAN, AUGUST 5, 1936

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Detroit Dealers Shunt Attention Of Refrigeration Prospects Away from Price-Cut Lines

**Or Encourage Prospects
To Get a Better Offer
Elsewhere**

By Winifred B. Hughes

DETROIT—Shunting the attention of the prospective purchaser who is motivated by a bargain-hunting complex to another line of refrigerators on which there is less price cutting; or blandly encouraging the prospect to "Get a better cut than that! You can!"—are two of the chief methods used by representative Detroit electric refrigeration dealers in meeting price-slashing tactics.

Solutions for correcting the evil, as seen by the dealers, pivot primarily around the idea that if the manufacturers and distributors would use a higher degree of selectivity in choosing retail outlets, and attach more stringent restrictions to the franchises granted, price cutting might be curbed.

Another very different solution offered by one dealer was that if there were no list prices established, dealers could figure out for themselves how much to charge, and customers would not have as a mental barrier the idea:

"Maybe I can do better elsewhere."

Some dealers also considered important the possibility of solving the problem by the formation of a dealer organization in which agreements as to price cutting could be worked out on a standardized basis.

The blame for excessive price cutting among dealers, according to opinions expressed by all dealers contacted, lies upon the shoulders of the distributors and the manufacturers. Distributors, stated one dealer, are quite evidently unconcerned on the entire question.

"As long as they get their money for the units, they don't care how the dealer gets his," he explained.

"We thought that one manufacturer was really going to do things in the line of giving stiff protective franchises, from the indications of the policies outlined when its 1936 line was introduced," declared another retailer. "But after the convention was over and the boys got back to their posts, the manufacturer proceeded to give new dealer franchises with a lavish disregard for the convention promises."

This same manufacturer, in the words of another dealer, has come nearest to reaching the ideal situation—protected and exclusive dealerships with a "no price cutting, or your franchise will be revoked" policy.

In the case of one dealer, whose store is located at a busy small-community center, there are, within the radius of one city block, six dealers all carrying the same line of refrigerators.

Of the dealers interviewed in this section, the majority gave as their solution to the problem of meeting competitive price cutting, that they would "try to sell the customer another line, one which carried more protection, and upon which there was less price slashing."

Manufacturers, as one dealer intimated, should see in this situation a warning that by allowing their retail representatives to cut prices, they are only throwing business into the laps of competitive manufacturers who have more stringent policies on list price maintenance.

Policy of Caswell, Inc., General Electric distributor for the state of Michigan, declares Paul Lewis, manager, is to sit back on the side lines, urge bargain-seeking patrons to try and get bigger discounts where they can, then write the orders when the prospect comes back confused and ready to be convinced that if one man offers a 20% rake off, and another a 40%, the merits of the machines so proffered must be open to question.

"We aren't in business for this

(Concluded on Page 4, Column 1)

Convict Devises Scheme For Camp Refrigerator

STILLWATER, Minn.—Iron bars and prison walls have failed to imprison the inventive mind of Albert A. Robbins, serving a 25-year term as "finger man" in the Leon Gleckman kidnaping in St. Paul.

Before being sentenced, Robbins had been working on an idea for a portable "canned cold" camp refrigerator. He now believes he has perfected a practical plan for a portable thermo-cold camp refrigerator for hunters, fishermen, motorists, picnickers, and vacationists.

Plans for his invention were placed before the state pardon board in connection with his application for commutation of sentence. He wants an opportunity to "field test" his invention.

Earnings

Universal Cooler

DETROIT—Universal Cooler Corp., for the quarter ended June 30, reports a net profit of \$106,454.32 after provision for federal income taxes, which compares with a profit for the same period in 1935 of \$138,754.96, before federal income taxes.

The corporation's fiscal year ends Sept. 30, and for the nine-month period to June 30, 1936, the report shows a net profit of \$175,132.57 after provision for income taxes, against a profit of \$67,795.88 for the same period ending June 30, 1935, before provision for federal income taxes.

No provision for a surtax on undistributed earnings is necessary as the corporation's fiscal year ends Sept. 30, 1936.

Crosley Radio Corp.

CINCINNATI—For the six months ended June 30 this year Crosley Radio Corp. reports a net profit after royalties, depreciation, Federal income taxes and other charges, of \$1,272,356, equal to \$2.23 a share on 545,800 shares of stock.

Comparison with a similar period last year is not available, as the company has changed its fiscal year to end Dec. 31 instead of March 31.

Fairbanks, Morse

INDIANAPOLIS, Ind. — Fairbanks, Morse & Co. and subsidiaries report for the six months ended June 30 a net profit of \$786,614 after depreciation, interest, Federal income tax, and provision for possible surtax on undistributed profits.

After the dividend requirements on preferred stock the net profit was equal to \$1.35 a share on common stock.

This compares with \$376,990, or 40 cents a share, for the first half of 1935.

Net sales increased to \$11,075,785 from \$7,452,715, the report stated.

Stewart-Warner

CHICAGO — Refrigerator division sales increased 141% over the same period in 1935, according to the financial report recently issued on Stewart-Warner Corp. and subsidiaries for the six months ending June 30.

In the six months to June 30, 1936, the refrigerator division showed a book profit for the first time.

Consolidated net income of the company and its subsidiaries for the six months' period, after all charges including depreciation and Federal

(Concluded on Page 2, Column 1)

G-E Plan Widens Scope of Hotpoint Distribution

ASSOCIATION ISLAND, N. Y.—A new program, designed to permit broader distribution of General Electric products and a closer coordination of the merchandising activities of the company's various divisions, was outlined to G-E distributors at "Camp Merchandising," four-day summer sales conference held here last week. About 360 distributors were present.

In the new plan to widen sales, the Hotpoint line will be entirely separated from association with General Electric. All Hotpoint products will be sold through Edison General Electric Appliance Co. of Chicago, a G-E affiliate.

Ray Turnbull, who had been in charge of small appliance sales at Bridgeport, was named general sales manager of Edison General Electric Co., effective Aug. 1.

The Hotpoint line will be filled out to include all major appliances. In

(Concluded on Page 2, Column 1)

Reorganization of Grunow Reported

CHICAGO—According to a telegram received from the General Household Utilities Co., final reorganization plans for the firm which manufactures Grunow refrigerators and radios were completed Monday, Aug. 3, when the trustees under the supervision of the Federal District Court transferred all the assets of the company in their charge back to the company. William C. Grunow and Charles H. Albers, trustees during the reorganization period, divested themselves of control of future operations of the company.

It was disclosed that of the \$1,000,000 loan from the Reconstruction Finance Corp., which was part of the reorganization plan, \$600,000 is being utilized at present, the remaining \$400,000 being available upon application by the company.

Elected as officers of the reorganized company are William C. Grunow, president; Allen G. Messick, vice president; Ralph R. Trimarco, treasurer; and Sidney L. Arneson, secretary. Newly elected board of directors includes George A. Ball, Muncie, Ind.; Mr. Grunow; Raymond W. Higgins, Duluth; and Clyde E. Whitehill, Indianapolis.

A meeting of Grunow distributors and dealers will be held here Thursday and Friday, Aug. 6 and 7, the telegram stated.

Midwest Moves Plant to Galesburg, Illinois

MORRISON, Ill., Aug. 1—Announcement was made here today that the Midwest Stamping & Enameling Co. will be moved from Morrison to Galesburg, Ill., about Jan. 1.

S. S. Battles, general manager of the company, said negotiations have been practically completed and his concern has signed all necessary papers.

While the new factory building in Galesburg is being remodeled and much machinery is being installed, the Midwest company will continue to operate in Morrison. More than 400 men will be employed in Galesburg. As many of the employees in Morrison who wish to move to Galesburg will be given jobs there. The weekly payroll here is about \$8,000.

Automatic Reclosing Circuit Breaker Co. Becomes Ranco

COLUMBUS, Ohio — Because its principal products have for a number of years been known by that name, stockholders of Automatic Reclosing Circuit Breaker Co. at a meeting July 31, voted to change the name of the corporation to Ranco, Inc.

The change of name does not involve any change of personnel, management, or policies of the company, according to E. C. Raney, vice president and general manager.

Editor Completes 7-Months' Survey of Foreign Markets For Refrigeration Products

**George Taubeneck Visits
32 Countries, 67 Cities;
Travels 35,000 Miles**

DETROIT—Safe, sound, and 20 pounds lighter, Editor George F. Taubeneck of ELECTRIC REFRIGERATION NEWS arrived in Detroit Friday afternoon, July 31, after a seven months' trip around the world in search of news about foreign markets for refrigeration products and air-conditioning equipment.

Editor Taubeneck left Detroit Jan. 8 (after a rousing send-off from 1,000 delegates to the Kelvinator convention) with a hand truck and two small bags. He returned with three trunks, three suitcases, and three bags—the extra luggage being filled almost entirely with notes, catalogs, promotion pieces, and miscellaneous material acquired while he was gathering information about each of the various countries he visited.

Traveling by steamship, airplane, railroad, and automobile (plus a bit of tramping on foot), the editor covered 35,000 miles (which distance is, roughly, one-and-one-half times around the globe at the equator) and visited 32 countries, making stops and paying calls on refrigeration firms in 67 cities en route.

Feature of the trip was the reception accorded to Editor Taubeneck by executives of refrigeration distributors and manufacturers in almost every port-of-call. Hospitality was showered on him by readers of ELECTRIC REFRIGERATION NEWS in the remotest corners of the world, as well as in the capitals of great nations.

This hospitality began on the Pacific Coast of the United States. The San Diego Electrical Appliance Association honored him at a luncheon, as did the refrigeration distributors of San Francisco; and in Los Angeles he addressed an evening meeting attended by more than 200.

In Honolulu he was guest-of-honor at a special luncheon arranged by the Hawaiian Electric Refrigeration Bureau. Auckland, New Zealand, was the scene of a gala luncheon and dinner given by refrigeration distributors in that city and attended by men from other important cities in New Zealand.

Way down under in Australia the lavish hospitality reached new heights. More than a score of Sydney refrigeration executives entertained the visiting editor on a week-end party at Jervis Bay. Melbourne refrigeration men tendered him a formal banquet at the historic old Scott hotel. A luncheon was arranged in Brisbane. And so it went—all around the world.

Among the most colorful of these occasions were two held in Bombay. One was an afternoon reception given by Mr. and Mrs. Ahmed Fazelbhai, and attended by leading citizens of Bombay from every sphere of commercial and industrial activity. The other was a formal dinner given by the Chinoy family (Frigidaire and General Motors distributors), to which important figures from the Indian political world came.

In addition to these group festivities, individual executives played host to Editor Taubeneck in every city, taking him into their homes and on "personally-conducted" sight-seeing tours, as well as on inspection trips through offices and factories.

Hence, instead of being "on the outside looking in," as is the case with most tourists, Editor Taubeneck was definitely on the "inside."

In addition to his own observations, he had the advantage of seeing each country through the eyes of people who live there. These latter often represented divergent and varying points of view, inasmuch as some were native citizens, while others were aliens who, although doing business there, really looked at a nation from a foreigner's standpoint.

Results of the editor's investigation

(Concluded on Page 2, Column 5)

A New Use — To Keep Minnows Cool—Found For Refrigeration

KANSAS CITY—Discovery of a new application for refrigeration, stumbled upon during the blistering July heat wave, is claimed by N. Baraban, head of the Copeland Refrigeration Co. of Kansas City, a distributing outlet.

During the hot spell, Mr. Baraban relates, fishing in the area surrounding Kansas City was practically brought to a standstill because fishermen were unable to secure bait. The shortage of minnows, it was discovered, was due to the fact that places selling live minnows were unable to keep them alive.

Mr. Baraban was called in as a consultant on the problem by anxious fishermen, and suggested that the water in which the minnows were kept be cooled.

Refrigeration apparatus was set up and the water cooled to 65° F. According to Mr. Baraban, this move not only preserved, but apparently restored life of a number of minnows, and made fishing again possible in this section of the country.

N.R.D.G.A. Appliance Group Formed

NEW YORK CITY—Formation of a permanent major electric appliance group to be included in the merchandising division of the National Retail Dry Goods Association was approved at a recent meeting of the association in the Hotel Pennsylvania here.

Edward List, manager of the electric appliance department, Abraham & Straus, Inc., Brooklyn, was elected president of the new group. He had been named temporary chairman at a meeting of the buyers in June.

The formation of the new group is in response to the feeling that unless some of the problems facing the department stores are solved, many shops will stand the danger of being permanently eliminated from the major appliance picture. Mr. List told the 30 buyers and store executives who attended the meeting.

Among the problems discussed as being urgently in need of organized action were trade-ins, special discounts to utility employees, the offering of premium merchandise to customers

(Concluded on Page 2, Column 2)

Perfection Parts Buys Out E. R. Capewell

HARVEY, Ill.—Perfection Refrigeration Parts Co. has acquired the goodwill, inventories, and production facilities of E. R. Capewell, Inc., Philadelphia, manufacturer of compressor replacement parts, it was announced last week by D. H. Daskal, president of the Perfection Co.

The products formerly made by Capewell are now part of the Perfection line. Manufacturing facilities of the factory here have been increased to take care of the additional production resulting from the acquisition of the Capewell line, Mr. Daskal declares.

E. R. Capewell, Inc., was one of the first, if not the first company in the country to manufacture parts for leading makes of compressors and sell them to independent service men.

June Excise Tax Payments Total \$1,827,935

WASHINGTON, D. C.—Manufacturers of mechanical household refrigerators paid a total of \$1,827,935 on the 5% excise tax in June of this year, as compared with a tax payment of \$1,202,976 in the same month last year.

COMMERCIAL SERVICE MANUAL STARTS IN THIS ISSUE

Hotpoint Appliance Distribution to Be Widened by G-E

(Concluded from Page 1, Column 3)
addition to the range, washer, refrigerator, and ironer, a Hotpoint dishwasher will be introduced in the near future, it was announced.

By the establishment of two lines—General Electric and Hotpoint—distributors will be able to increase their outlets in a given territory, without running the risk of duplication or competitive conflict, Vice President C. E. Wilson said in announcing the new plan.

P. B. Zimmerman, general manager of the appliance and merchandising department, in announcing the detail of the new set-up, said that neither line will be subordinated to the other, nor will they be confined to any particular type of retail outlet. The dual lines simply offer the company an opportunity to open additional dealerships, Mr. Zimmerman said.

Ralph C. Cameron, assistant manager of the specialty appliance sales division, told the meeting that the new policy would permit a decided expansion of distribution of their products through furniture stores.

At the close of the sales meeting, a party of G-E executives and employees started on a five-week tour of 23 major cities, in which they will repeat the story of selling G-E and Hotpoint products. Through speeches, movies, and skits, they will present the fall merchandising story.

Mr. Wilson and Mr. Zimmerman head the party, which includes Ralph J. Cordner, in charge of radios; David Spooner, in charge of laundry equipment, vacuum cleaners, and small appliances; and Claude Hedon, John Witch, and "Boney" Atkinson, each in charge of individual appliances.

Dept. Store Appliance Mgrs. Form Association

(Concluded from Page 1, Column 4)
as an inducement to buy, long-time service guarantees on refrigerators, competition of unethical distributors, operating expense in an appliance department, and dealer price chiseling. The organization of appliance buyers is expected to follow the same general lines as the Housewares, China and Glassware Buyers Group, approved the day before. A general chairman for house furnishings in the division is suggested as a means of coordinating the two groups.

Regional vice chairmen in key points throughout the United States will be appointed from among the buyers.

Westinghouse at the Texas Centennial



Westinghouse is exhibiting a completely equipped electric kitchen, small appliances and all, at Texas Centennial. Left: a Rangerette inspects the range. Right: Typical group of visitors. A room is devoted to refrigerators.

Refrigerator Sales of Stewart-Warner Are Up for 6 Mos.

(Concluded from Page 1, Column 2)
taxes, was \$1,054,362, equivalent to 85 cents a share on the 1,241,847 shares of common stock outstanding in the hands of the public, which constitute the entire capitalization. This compares with the net income, after all charges, of \$1,020,491, or 82 cents a share at the conclusion of the six months ending June 30, 1935.

For the three months ending June 30, 1936, net income after all charges was \$622,035, equivalent to 50 cents a share of 1,241,847 shares of stock outstanding, as contrasted with the net income of \$524,428 or 42 cents a share of 1,246,187 shares for the three months ending June 30, 1935.

Federal income tax provision for the six months ended June 30, 1936 has been computed at the normal rate, the report says. No provision has been made for the surtax chargeable under the Revenue Act of 1936 on undistributed profits.

The consolidated balance sheet of June 30, 1936 shows current assets totaling \$9,286,923, including cash of \$3,022,417 against current liabilities of \$1,616,006, or a working capital ratio of 5.7 to 1. At December 31, 1935 current assets totaled \$8,056,535, including cash of \$2,412,188 against current liabilities of \$1,630,325.

'Bank Reserve' System Enables Salesmen to Have an Income the Year Around

HARTFORD, Conn.—Salesmen for Modern Home Utilities, Inc., General Electric dealer here, work on a commission basis only—but they have a year-round income, thanks to the "bank reserve" system put into effect last year by Manager S. P. Bang.

Under the plan, the men are paid a commission and bonus, much the same as in many other dealerships. But here the similarity ends. For Modern Home Utilities salesmen have 2% of their earnings, during the peak months, held back, and put into the "bank reserve."

This amount is paid out in 10 equal installments, beginning December 15.

"This plan, we've found, keeps the salesman's income stable through most of the year," Mr. Bang says. "We begin the payments on December 15, because commissions usually tend to drop off around that time—and then a little extra cash always comes in handy at Christmas time."

"The 'bank reserve' funds for the individual salesmen will never be the same—and so the amounts vary rather sharply. If a man has had an especially good year, his regular income has been good, and so the extra cash comes in handy as a sort of 'velvet' for the man who hasn't done so well during the regular season, and whose cash on hand is consequently lower, the reserve money is a big help over the rough spots."

"By the time the 10 weeks are up, it's March—and the regular selling season is starting out again."

"Another thing we've found about the reserve system is that it keeps our men with us throughout the year. Otherwise, when selling gets tough, some of the men are apt to leave a job selling refrigerators, for example, for another one selling oil burners. In the spring, they'll come back—but you've lost them during the slack season."

How satisfactory the reserve system works is evidenced by the fact that, of Modern Utilities' 10 salesmen, the average time of association with the company is four years, while one of the men has been on the job for seven years.

And that the "bank reserve" payments, to some men at least, run to fairly sizable amounts is indicated by the fact that those 10 salesmen sold \$114,000 worth of General Electric equipment in 1935—and are shooting for a total business of \$142,000 this year.

The company's commission scale runs from 11%, for refrigerators, to 15%, for washers and dishwashers. Commissions on the General Electric Workshop run still higher, but, as Mr. Bang says, "we don't sell many of them—yet."

Individually, commission rates run as follows:

Refrigerators, 11%; ranges, 12%; ironers, 14%; washers and dishwashers, 15%. In addition, the men receive a bonus of 1% if they do a "balanced selling job" over a period of a year.

"With these rates, and the bonuses, the men will make good monthly salaries during the big months of the year," Mr. Bang says. "When we wanted to start this 'bank reserve' plan, we went to them with it, and asked for their opinions."

"To a man, they thought it was a good idea. You see, the tendency is, when the money's coming in fairly easy, to spend it much the same way—and when sales are fewer and harder to get, the family income suffers."

"Selling is not like a salaried job, where you've so much coming in every week. In this business, there are peaks and dips—and the reserve plan is intended to help our men level off the peaks and fill up the dips."

Fastest growing child in the home

appliance family in Hartford, says Mr. Bang, is the electric range. Right now, the refrigerator-to-range ratio in the city is only 7 to 1—and Mr. Bang predicts it will be considerably less by the end of the present year.

Hartford Electric Light Co. believes it has gone far out of its way to cooperate with independent dealers in the sale of domestic appliances—ranges especially in recent years.

Of course the utility continues to cooperate with dealers in refrigerator sales as well; but its main bolt on refrigeration was shot some years ago—and as a consequence the city's saturation mark is well up.

The utility does no merchandising itself. Its display floors are stocked with samples of every appliance sold in town—ranges, refrigerators, washers, ironers, cleaners—and it finances dealers' sales on all the appliances sold on its lines, collecting along with the monthly light bill.

On range sales, the utility stands the cost of wiring and installation itself, all but \$15—and even this amount is refunded to the customer after he has used the range for two years. In addition, range owners become eligible for a low power rate, averaging somewhere around 2½ cents per kwh.

The utility maintains a range demonstration room—a complete kitchen, in fact—in which any dealer, or his salesmen, may make a demonstration at any time, without cost.

Sometimes the salesman feels the demonstration may be made more effectively in an owner's home, with her friends as prospects. The utility will finance this, too, paying the housewife \$5 for her trouble.

Editor Returns from Survey of Markets in Foreign Lands

(Concluded from Page 1, Column 5)
tions and observations have been published regularly in lengthy articles in each of the last 30 issues of the News. So far the "World Series" has followed the editor to Egypt.

Succeeding articles will take the reader through Palestine, Malta, Spain, France, Monaco, Italy, Austria, Hungary, Switzerland, Holland, Sweden, Germany, and England. The series will probably continue through the autumn months.

Not only has the world-traveling editor made a thorough coverage of the refrigeration and air-conditioning business in each country and city he visited—including detailed reports on the various importing agencies and mercantile establishments which distribute American equipment abroad—but he has also written his impressions of the people of these various nations, their habits, customs, desires, scale of living, surroundings.

These "general" contributions to the travelog have been presented to help American manufacturers and exporters gain an intimate picture of the markets they are serving, so that they might key merchandising methods, as well as production and design, directly to the needs of each nation and city.

During the trip Mr. Taubeneck took hundreds of "candid" photographs with his Contax camera, and a small selection of these appears in illustration of each article.

Following are the cities visited by the editor, and the dates of the issues in which his travelog reports have appeared in the News:

Jan. 8, 1936—Detroit, Mich.; Jan. 15, 1936—Jackson, Mich., and Chicago, Ill.; Jan. 22, 1936—St. Louis, Mo.; Jan. 29, 1936—Claremore and Tulsa, Okla.

Feb. 5, 1936—Dallas, Texas; Feb. 12, 1936—El Paso, Texas, and Juarez, Mexico; Feb. 19, 1936—Yuma, Globe, and Phoenix, Ariz.; Feb. 26, 1936—San Diego, Calif. (also California Pacific Exposition).

March 4, 1936—Los Angeles and Hollywood, Calif.; March 11 and 18, 1936—San Francisco, Calif.; March 25, April 1 and 8, 1936—Honolulu, Hawaii.

April 15, 1936—Pago Pago, Samoa, and Suva, Fiji Islands; April 22 and 29, 1936—Auckland, New Zealand.

May 6, 1936—Melbourne, Australia; May 13 and 20, 1936—Sydney, Australia; May 27, 1936—Brisbane, Queensland, Townsville, Australia.

June 3, 1936—On Shipboard (Sydney to Singapore), and Darwin, North Australia; June 10, 1936—Papua and New Guinea, Soerabaya, Java; June 17, 1936—Bandoeng, Batavia, Semarang, Soerabaya, Solo, and Djocja, Java; June 24, and July 1, 1936—Singapore, Straits Settlements.

July 8, 1936—Penang, Rangoon, Burma; July 15, 1936—Calcutta, India; July 22, 1936—Benares, Agra, Delhi, Bombay, India; July 29, 1936—India, the British Empire.

Aug. 5, 1936—Aden, Arabia; Suez Canal, and Cairo, Egypt.

CONDENSERS • EVAPORATORS

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Quality and efficiency are the outstanding features of Long condensers and evaporators. Condenser units of tube and flat continuous fin construction, in copper and steel, give maximum heat dissipation per pound of material used, and collect less dust. Available in both domestic and commercial units for electric refrigeration and air conditioning applications.

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PORCELAIN ENAMEL

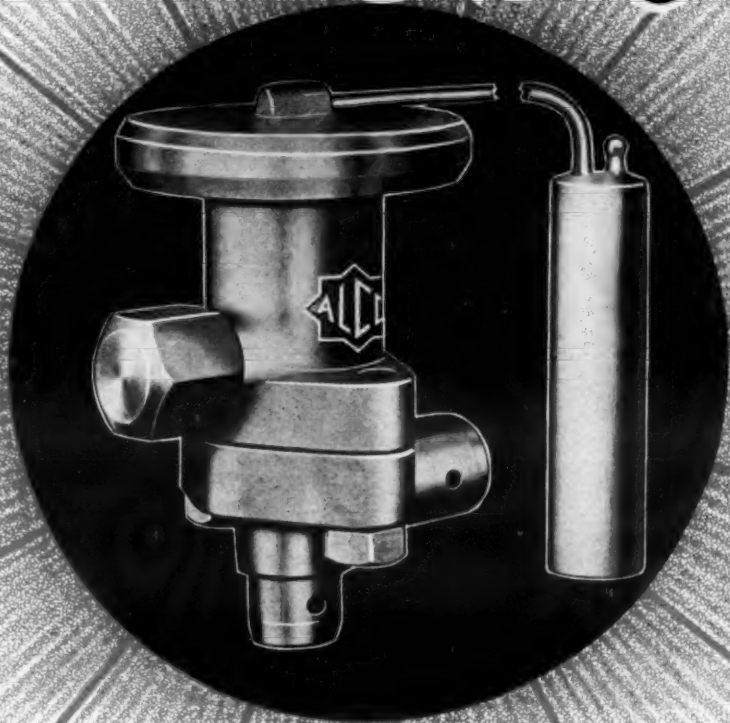
There are automobile manufacturers who will spend as much as \$1,500.00 to make a car—then put a 6-cent lock on the door!

It is reliably stated that nearly a third of one low-priced car manufacturer's 1934 production was stolen—because the lock was so poor a hair-pin could open it.

Manufacturers of electrical refrigerators—take heed! Don't spend a lot of money in design and improvement, then apply a finish so temporary and soft a hair-pin will scratch it!

PORCELAIN ENAMEL

PORCELAIN ENAMEL INSTITUTE, INC.
612 NORTH MICHIGAN AVE.
CHICAGO



The SHINING LIGHT

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**REFRIGERATION
INDUSTRY**

ALCO Series "T" Thermo Valves

2 The development of the Alco Series "T" Thermo Valves marked the dawn of a new era in liquid refrigerant control. They have been widely accepted by the industry as the greatest advance since the discovery of automatic refrigeration.



Manufacturers interested in obtaining the highest efficiency from their evaporator coils are invited to avail themselves of Alco's free laboratory facilities for arranging correct liquid distribution and valve application.

ALCO VALVE CO., INC.

2628 Big Bend Boulevard
ST. LOUIS, MO., U. S. A.

"KNOWN WHEREVER REFRIGERATION IS CONTROLLED"

Detroit Dealers Claim 'Protection' Of Prices by Manufacturers Would Remedy Price-Cutting

(Concluded from Page 1, Column 1)

volume stuff, we're out to make money," declared Mr. Lewis after he had explained that the General Electric policy has a standard-price, exclusive-dealer underpinning.

When a prospect brings up the point that she has been offered, in accordance with the age-old practice of granting generous trade-in allowances, a sizable amount on her old ice box, salesmen for the Caswell organization explain to her that she's not really getting anything out of the ordinary, because there is a price-variation which enables the dealer to offer what is seemingly a give-away discount.

Next step in the process is to swing the prospect's attention into the General Electric product story, elaborating upon and emphasizing features claimed to be distinctive for the line.

July has been for the distributorship a better selling month than was July, 1935, and sales during the month have surpassed even those of June, according to Mr. Lewis.

Problem with Smaller Dealers

"I don't think that price cutting is as big a problem with us as it is with some of the smaller dealers who handle several lines," stated Jack Ryal, president of Ryal's, Inc., appliance dealer with seven stores in Detroit.

"We handle only one line—Frigidaire—and the factory gives us pretty good protection. When we hear that a competitive Frigidaire dealer has cut his price, and it has lost a sale for us, we report it to the factory. The dealer is made to pay for the loss, and we receive checks from the factory to cover what we lost."

Specific protection granted by the manufacturer, Mr. Ryal explained, includes for each of the seven stores a protected territory extending for about a five-block radius, in which other Frigidaire dealers can't take orders.

Protection Carried Out

Protection given to Frigidaire dealers is, in his opinion, carried out in all cases, Mr. Ryal stated. He gave a typical example of what he meant and related a story about how one of the branch store managers was selling a box to a neighboring merchant with whom he did a great deal of business, at a slightly discounted price. When the sale was turned in, a competitive Frigidaire dealer who had previously contacted the merchant, complained, and the Ryal outlet was unable to make the delivery, with the consequence that the merchant bought another make of refrigerator from someone else.

Mail-order house price-reduced competition does not offer a very great problem, Mr. Ryal said.

Enough Business for All

"I believe that concerns of that kind sell to an entirely different market than we do, and I feel that there is enough business for all of us."

With its July sales way ahead of those made in June, although not quite as high as the May record, Ryal's is running a special sales contest to keep its sales force on the job during the months of July and August. Based on a point basis in which each dollar's worth of merchandise sold gives the salesman 2 points, the contest has a wide and attractive array of merchandise prizes including furniture, jewelry, appliances, toys, luggage, etc.

Wives Cooperate in Contest

"We mailed a letter to each salesman and his 'better half' about the first of July, telling them about the contest and enclosing the booklet picturing the prizes. You see what we wanted to do, principally, was to get the men back on the job after the Fourth of July."

"You'd be surprised at the men's response to the contest. For one thing, I guess their wives pore through the catalog and see some article which they want, and urge the men on to build up their points."

According to Mr. Ryal, a greater amount of the sales made after the peak summer selling season is over, are made out through the field; people don't do as much shopping on electric refrigerators when they buy at times other than the big selling months.

Last November was the biggest selling month for the entire year, Mr. Ryal stated. This was largely due to the work of the direct selling force, of which there are between 80 and 100 men, he explained.

Switch to Another Line

"I'll tell you what we do: when a prospect says that she can get a

better price somewhere else on one type of refrigerator, we try to sell her a box of another line upon which we have more protection," said H. L. Smith, manager of Central Stores, 4035 Fenkell Ave. Lines carried by the store include Crosley, Kelvinator, Gibson, Hotpoint, and Norge.

The store employs no outside salesmen, does no outside canvassing, and relies chiefly upon a good mass display in getting the store traffic interested in electric refrigeration.

Another Detroit dealer store manager, representative of a well-known chain of appliance shops of which there are several in Detroit and the vicinity, stated that his salesmen sell units on company name and quality; that nothing is done to meet competitive methods other than this, and that most of the sales made by the stores are to old customers who had previously purchased merchandise from them.

'Can't Do Anything About It'

"We can't do anything about it," said A. J. Lewis, manager of the Wagner Electric Co., 12022 Linwood Ave., when questioned on his attitude in regard to competitive price-cutting methods.

"We lose a lot of money that way, but we are resigned to the fact," Mr. Lewis said. "When a customer says that she can get such and such a refrigerator 20% cheaper from another dealer, we tell her to go ahead and get it; then we point out to her that part of the discount which she is getting is taken care of in the list price, and that the rest will have to be sacrificed on service or in some way."

One of the reasons behind price cutting, in Mr. Lewis' opinion, is the fact that some small dealers who stock only a small number of refrigerators each year, find the summer selling season passing with a good percentage of their stock still unmoved, get scared, and slash their prices to further their stock turnover.

Elimination of List Price

Elimination of list price on refrigerators, Mr. Lewis thinks, might be one method of solving the problem.

"If this were done," he said, "then the dealer would know how much the box cost him, how he could price it. People would buy it at his price because they wouldn't have their judgment based entirely on the price consideration, and they wouldn't have in the back of their minds 'How much off can you give me?'"

"Of course the idea might not work out," Mr. Lewis commented, "but it seems like one way to solve the problem, to me."

During the month of May salesmen of Wagner Electric Co. sold over 100 electric refrigerators; June and July sales were a little under this figure, but both months have been good, the manager affirmed.

Interested in Profit

"Our policy is to direct the customer's attention to another line which is better protected; we aren't as much interested in volume as in making profits, and can't afford to sell a refrigerator and make a \$5 profit on it," said Louis Marks, manager of Lind's Radio Store at 6325 Fenkell Ave.

"If a customer says that she can get a \$162 list price refrigerator for \$139, we tell her: 'Go ahead and buy it, but remember, you get just what you pay for.'"

Then, Mr. Marks explained, the salesman uses the mechanical story to divert the prospect's attention onto another make of electric refrigerator. If the box on which she first seeks a discount has an open unit, he plays up the values and advantages of the sealed type unit, and reverses the process to suit the particular case.

Suggests Dealer Organization

"They say that selling is an art," Mr. Marks commented, "but I don't think it is, I think it's just good common sense. When you can show a prospect important points of difference, and substantiate the points, it is bound to influence her."

Selectivity in granting dealer franchises would be, in Mr. Marks' opinion, the panacea for price-cutting ills. The situation which exists, he believes, is greatly similar to that which threatened the radio industry, and will eventually have an even more tragic end, unless the problem is solved.

Just Good Common Sense

Second solution which Mr. Marks thinks might work is that of forming a dealer organization here, in which agreements as to the price-cutting

Planning 'Frigidaire Frolics'



A group of master salesmen and advertising men put their heads together on one of the "Frigidaire Frolic" programs now being broadcasted coast to coast Friday nights under the sponsorship of Frigidaire dealers. Seated, left to right, Charles T. Lawson, household sales manager, Frigidaire Corp.; Frank R. Pierce, manager, household division, Frigidaire; Ted Fio Rito, orchestra leader and musical director of the series. Standing, left to right, H. G. Little, Dayton manager, Lord and Thomas; "Muzzy" Marcellino, singer with Fio Rito's band; and Carl A. Copp, Frigidaire vice president and general sales manager.

problem could be arrived at. Even this, he added, probably would not be entirely successful, because the dealers would meet and talk, and go home and proceed to sell just as they had previously sold.

As a typical example of how restricting the number of dealers and making the franchise requirements stiffer might stamp out the price-cutting evil, Mr. Marks cited the case of a manufacturer of washing machines who has established such a policy.

"They have only a certain number of dealers throughout the country, and the dealers are told what to do; if they don't do it, they get their franchise taken away from them."

One experience which this Fenkell Avenue dealer store manager has had is that employees of two of the manufacturers of electric refrigerators

here in Detroit come into his store and expect a discount because they are employees of the manufacturing companies. Such requests are emphatically refused, and no cuts given, Mr. Marks stated.

July sales for this branch store were ahead of those of either May or June, Mr. Marks said. New promotion being run this week in the neighborhood paper was featuring, in a full-page advertisement, the offer of a vacuum cleaner on each sale of an electric refrigerator, in which the purchaser pays an additional \$1.95 for the vacuum cleaner.

"This may sound funny after what I've said about price cutting," Mr. Marks concluded, "but some of the things that dealers around here have been doing lately have made me mad, and I decided to do what I could about it."

Leo Roberts, Salesmanager of a Brooklyn Store, Analyzes the Price-Cutting Problem and Offers Solutions a Salesman Can Use

European Radio Co., Inc.
Frigidaire-Delco-Heat
282 Livingston St., Brooklyn, N. Y.
July 29, 1936.

Publisher:

I read with great interest your recent editorial dealing with Price Cutting.

We in New York are faced with a more vicious form of price cutting than that which you have described in your editorial. We are faced with a wholesale tendency on the part of dealers to undersell any new standard make of refrigerator by as much as 20%.

It is one thing to meet competition involving cut price in competitive makes and it is quite another thing to attempt to meet competition involving the identical box being sold at a discount. The latter situation is the toughest type of competition that can be raised, and it is in connection with that situation that I wrote the attached article which relates specifically and most definitely to this problem.

If you feel that this article may be of benefit to your various readers, I shall be most happy to permit you to use it in your publication.

LEO ROBERTS.

(Editor's Note: The following are excerpts from Mr. Roberts' article, which was published in *Retailing*.)

In attempting to determine ways and means for correcting this evil, it becomes highly important to investigate the basic causes of price cutting.

Why does the average dealer permit himself to cut prices and in so doing give the life blood of his business, profits, away to a customer?

From my observation, I have found that there are two forces that instigate every cut in price, and they are fear and ignorance. Let us analyze both the cause and remedy for each of these potent forces. Let us see how fear operates to break down the structure of price.

Justify Price of Product

Let us suppose that after a long sales talk Mr. Prospect refuses to sign up on the grounds that the price is too high. Mr. Dealer attempts to justify the price by pointing out in detail the quality and efficiency of the refrigerator. Mr. Prospect still is unconvinced and starts walking out with the remark that he is going to look around.

Mr. Dealer becomes mildly panic-stricken. He becomes obsessed with

the fear that Mr. Prospect will never come back. If he cuts his price, he loses part of his profit . . . but part of a loaf is better than none and he reasons that 10% profit in his cash register is better than in his competitor's. So he surrenders, and calls the prospect back and closes the deal.

Without question, it is fear, and fear alone, that prompts most of the otherwise legitimate dealers to cut price.

There is, to my mind, but one effective way to eliminate that obstacle and that is to eliminate the cause of that fear, the vicious, conning type of chiseling dealer.

Dealers Appointed Indiscriminately

Since 1934, the distributors in each city, in their blind rush for volume, have appointed indiscriminately every type of dealer available, on the grounds that if they didn't grant them a franchise, a competitor would.

As a result, here in Brooklyn, home of more than 2,500,000 people, with probably the greatest market in the world for refrigeration, there has become entrenched the most unethical, unscrupulous type of dealer in existence.

Certainly, however, the distributors have heard of the law of diminishing returns. The business gotten by such dealers is not their own but rather the parasite spoilage plundered from the producer type of dealer.

Breaks Down Morale

Continual loss of business caused by such spoilage inevitably breaks down the morale and enthusiasm of any legitimate selling organization, with the end result that less business is created for the chiseler to pilfer and the old reliable law of diminishing returns forces volume down.

I believe that every distributor for every leading make should belong to an association, to jointly revoke the franchises of notorious, chronic price cutters. If they act in unison, then no one distributor need fear that the dealer he cut off would be enfranchised by another distributor. And, much to their surprise, they will find that the elimination of such dealers will increase the total volume appreciably, because the ethical dealer can then operate far more efficiently and enthusiastically.

Force of Ignorance

Now let us return to the force of ignorance and see how that operates to break down the structure of price.

When Mr. Prospect expresses his preference for a competitive make every dealer is trained and equipped to overcome that objection. When Mr. Prospect expresses his fear that his electric bill will be too high every dealer is provided with sufficient sales data and ammunition to overcome that one objection. But let Mr. Prospect raise the objection that he can buy cheaper elsewhere and the answer to that vital, overpowering objection is most conspicuous by its absence in any sales manual that can be found.

I have seen thousands of sales slants, hundreds of sales manuals covering every conceivable objection, but I have failed to see the answer to the biggest and the most destructive objection that has ever been raised in the buying of an automatic refrigerator.

Must Solve Problem Alone

Mr. Dealer has been deserted, left high and dry on that one objection and he has been left entirely to his own ingenuity and resourcefulness in solving that problem. Is there any wonder that he takes the path of least resistance?

A dealer can fervently hope that the customer will pay the right price, but all the prayers will be to no avail because hoping won't convince a prospect. It takes intelligent sales talk to do that.

Last year when the discount fever became so contagious that every prospect clamored for bigger and better discounts, I decided that if the factory or the distributor couldn't supply me with the discount antidote, then I'd have to manufacture and create my own.

Counter-Discount Talks

Based upon my experience with thousands of customers, I carefully worked out a set of counter-discount talks that have enabled my men to sell hundreds of customers at list price even though they were quoted better prices elsewhere.

Consequently, when a customer raises the discount cry, my men are no longer panic-stricken but they proceed in an orderly, well-coordinated fashion to build up the association in the prospect's mind between list price and safety and cut price and danger.

Samples of Talks

Here are some of the verbal bombs that we employ to blast the discount notions that many prospects entertain:

a—Mr. Prospect, if you were buying an electric refrigerator every year, then it would pay you to take a chance and buy at a reduction. If it proved an unsatisfactory buy, why then you'd buy right the next year. But do you realize that you're now buying a lifetime investment and any mistake that you make is a lifetime mistake?

b—Mr. Prospect, if you were spending 50 cents or \$1, then I'd say take a chance. After all, the most you could lose would be \$1. But did you ever stop to consider that you are investing over \$100? That's a lot of money. Do you mean to say that for the probability of saving a mere \$20 you are going to speculate and sacrifice the safety of over a hundred dollars?

Buying a Piece of Mechanism

c—If you were buying a piece of furniture or a rug and you could save \$20 or \$30, then I'd say save that money by all means. Even though the rug might be slightly defective or off color, you would still have an efficient rug. But . . . Mr. Prospect, did it ever occur to you that when you buy an automatic refrigerator, you are buying a piece of mechanism. It is a living thing that runs day in and day out. Suppose you do buy your refrigerator from some auction house or illegitimate type of dealer and the mechanism dies, did it ever occur to you that your entire investment is completely lost?

d—If you could save \$100 then I'd say take a chance. At least you are given an even break to lose \$100 and save \$100. But do you intend for the sake of saving \$20 to risk the safety of a \$180 investment? Where are the odds? Why, the most reckless business man would never gamble the safety of a lifetime investment on those odds. In other words, Mr. Prospect, do you mean to tell me that for the sake of saving a measly \$20 that you are going out of this reliable store and order your refrigerator from some fly by night, second-hand type of outfit, when you know that the odds are against you 100 to 1 to lose 10 times the money you apparently save?

e—Mr. Prospect, your wife and family have been dreaming for years an electric refrigerator for many years. And now that their dream is coming true, do you intend to get one at the right price, that is guaranteed at the factory from a reliable house like ours, or are you going to gamble away the dream of a lifetime for a few measly dollars?

Kelvinator Publishes 16-Page Booklet on Food Refrigeration

NEW YORK CITY—Covering the subject of foods in relation to their nutritive qualities in sustaining good health, and the degree of refrigeration required for their proper preservation, the 16-page booklet "Scientific Refrigeration in Relation to Nutrition and Health," just published by the Temperature Research Foundation of Kelvinator Corp. gives a comprehensive picture of the scientific developments made in regard to food values and care.

The booklet was written by Lulu G. Graves, consultant in Nutrition and Organization of Dietary Departments, who is a member of the advisory committee of Kelvinator Research Foundation, honorary president of the American Dietetic Association, and past professor of dietetics at Cornell University and Iowa State College.

Refrigeration Most Satisfactory

"Refrigeration is the most satisfactory method of preserving foods from the viewpoint of retaining natural characteristics unchanged, and it is effective under all normal conditions. It does not perceptibly alter the taste, appearance, or nutritive value of food." From this premise, the author then treats the importance of controlled electrically refrigerated temperatures in checking bacterial growth and preventing mold and yeast formation.

"Such products as meats of all kinds, eggs, milk, fruits, and vegetables," it states, "are kept from spoiling, and those foods which are eaten raw retain their natural freshness . . . (in an electric refrigerator.)"

Used from Start to Finish

Because of the development of refrigeration as applied to the construction of refrigerated cars, cold storage warehouses, and the construction of household electrical refrigerators, people's diets can be supplied with meat and fish in its fresh and most nutritious form, the pamphlet states.

Health-promoting qualities found in meats, the booklet says, include protein (energy builder), phosphorus and iron, vitamins A, B, and G, (found particularly in liver, heart, and other glandular organs), and in fish, iron and copper, calcium, phosphorus and iodine.

While the temperature given by the booklet for the best preservation of milk (which furnishes all the elements necessary for human nutrition) is between 45 and 50° F., that advocated is 40° F., or between 40 and 45° F. Cautioned importance of keeping milk at this low temperature is founded on the fact that milk is an excellent medium for the growth of bacteria, types of which are highly harmful to health.

Fruits and Vegetables

Fruits and vegetables along with eggs, the booklet claims, do not need extreme cold; they can be placed in the less chilled parts of the refrigerator and will keep. From the standpoint of edibility and attractiveness, mechanical refrigeration contributes its greatest benefits to these foods.

An entire section of the booklet is devoted to an explanation of the vitamins, A, B, C, D, E, and G, the exact position each holds in health building and maintaining, and in which foods each vitamin can be found in the highest concentration.

Similar dissertation covers the importance of protein, fats, carbohydrates, and mineral oils. Concluding the copy is a menu for a day, arranged according to its efficacy in providing the optimal nutrition for maximum health rather than a diet in which calories, vitamins, etc. are balanced.

Lamar-Rankin Co. Named Spartan Distributor

ATLANTA — Lamar-Rankin Co. of this city was recently appointed distributor for Spartan radios in Georgia and in seven counties of South Carolina, reports Hugh Snyder, district manager for the Sparks-Withington Co. in the southeastern territory.

B. P. Humphries, sales manager of the distributorship, will start holding dealer meetings Aug. 3 in the following cities: Atlanta, Aug. 3 and 4; Macon, Ga., Aug. 5 and 6; Savannah, Aug. 7 and 8; and Augusta, Ga., Aug. 12 and 13.

Kenny Elected Officer Of Sheffler-Gross Co.

PHILADELPHIA—Thomas J. Kenny was recently elected vice president and director of The Sheffler-Gross Co., sales engineers in the Drexel Building here.

The Sheffler-Gross Co. are representatives for Fulton Sylphon Co., Julien P. Friez & Sons, and other companies.



It takes no crystal to see the future of Dry-Zero Insulation

What happens to Dry-Zero Insulation in a refrigerator is an open book. What happens to any insulation, as a matter of fact, can easily be learned by anyone interested. Elaborate laboratory tests prove Dry-Zero Insulation can save from 20c to \$2.00 per month in operating costs. Simple, made-at-your-desk tests show what happens to insulation in the presence of moisture, and that Dry-Zero Insulation is practically unaffected. And remember that moisture inevitably gets into the insulation in any refrigerator.

We will be glad to give you, upon request, the detailed facts learned in the famous Dry-Zero Laboratory. You can learn for yourself the results of the "bottle-test."

But whether you do either, you have a powerful selling tool if you are fortunate enough to be handling a refrigerator insulated with Dry-Zero. **Your customers will save money in operating costs every month, year after year, for the entire life of their refrigerator.**



The famous insulation bottle-test. Put a sample of each kind of insulation in a small, wide-mouth bottle. Add a tablespoon of water and cork. After a period of weeks, most material will be reduced to a useless pulp. Dry-Zero Insulation is entirely unaffected and as thoroughly efficient as ever.

DRY-ZERO
INSULATION
The Most Efficient
Commercial Insulant Known

Dry-Zero Corporation

222 North Bank Drive
CHICAGO, ILLINOIS

687 Broadview Ave.
TORONTO, ONTARIO

Commercial Uses

7-Ft. Self-Contained Display Case Built By Winter Air Co.

CHICAGO—Winter Air Products Corp. here is marketing the Winter Air self-contained display case, a unit 7 feet long and with 22 sq. ft. of self display space, equipped with a 1/2-hp. Westinghouse hermetically sealed condensing unit.

The case is of all-steel construction, with exterior finish in white Dulux, with the exception of the top pan and light fixture, which are of white porcelain, and the kick plate, which is of black porcelain. All of the visible interior, including the perforated end panels, is of white porcelain also.

The case is 7 feet long, 52 1/2 inches high, and 35 inches wide over the hardware, with a storage compartment of 11 cu. ft., a display compartment of 22 cu. ft., a total cubical content of 33 cu. ft. It has three shelves, all of heavy duty tinny wire with rigid support brackets. Lower shelf has 12 sq. ft. area, center shelf, 5 1/2 sq. ft., and top shelf, 4 1/2 sq. ft.

Three Plates of Glass in Front

Front glass of the case comprises three plates 1/4 inch thick, set in rubber, employing a new improved method of sealing. Double sliding doors in the back are of hard rubber, triple glazed, equipped with rustproof steel rollers for easy sliding on hard rubber rail frames. Each of the doors is 24 1/2 inches high and 30 1/2 inches wide, and the total door opening is 24 inches high and 58 1/2 inches long.

Doors on the storage compartment are of the double pan type, with bakelite edging strips, with a double air seal—a surface gasket outside and a special bevel moulded rubber breaker strip on the inside.

Lighting system is of the exterior type, ventilated, with the continuous white porcelain reflector holding six lamps. In the rear of the case is a combination switch and socket for operating an electric scale, if desired.

Hardware on the service door is of the heavy duty vertical pull type, chrome plated, and designed for maximum service.

Cooling Coils Used

Cooling coils are of the patented semi-flooded type, especially constructed for use in the forced air system which is used in the case, and of sufficient capacity to insure quick pull-down and speedy recovery under all service conditions.

Condensing unit, of 1/2-hp. capacity, is of Westinghouse manufacture, hermetically sealed and furnished complete with control, adjusted and set to maintain proper conditions inside the cabinet. The condensing unit is covered by the standard Westinghouse five-year protection plan.

A maple wrapping board is supplied with each case, for installation on either side of the case as desired. A slot for knives is provided in the board, and a compartment below is intended for the storage of standard sized 9 by 12 inch waxed paper.

Standard case manufactured by the company is for use on alternating current only 110 volt, single phase, 60 cycle.

8 Servel-Cordley Coolers Used in Federal Bldg.

MACON, Ga.—The Federal Building here has installed eight Servel-powered Cordley electric water coolers, reports A. S. Hatcher Co., distributor.

AIRLINE PRODUCTS... MODERN WATER COOLERS

- 3 to 1000 Gallons per Hour
- Cabinets Complete with Lowsides
- Spear Ice Water Generators
- Efficient Internal Tube Coolers

* Send for Catalog

RICHMOND ENGINEERING CO.
2914 Richmond Street Philadelphia, Pa.



Different Temperatures Held in 5 Florist Storage Rooms

DENVER—Installation of a refrigeration system providing five different temperatures in five storage compartments, operating from a single condensing unit, has recently been completed for a wholesale florist's establishment here by Public Service Co. of Colorado. Kelvinator equipment was used.

Only a short time ago the company installed a similar Kelvinator system, providing four different temperatures in as many compartments, for a wholesale fruit company's use in ripening bananas.

Five Sections in Box

In the florist cooler, measuring about 18 by 50 by 11 feet, the company installed a 3-hp. four-cylinder condensing unit with forced convection coils. The box is divided into five sections, each measuring about 10 by 18 feet. Temperatures run as follows: 58, 50, 46, 40, and 36-38° F.

Temperature in each compartment, however, may be regulated to provide any condition desired.

Operating costs average about \$15 a month, and the unit requires about eight hours operating time a day. Use of a single unit to operate the five compartments is credited in large measure with this saving in operation.

Fruit Company Installation

The wholesale fruit company installation also uses a 3-hp. four-cylinder unit with forced convection coils. Overall measurement of the box is 80 by 20 by 11 feet, and is divided into four compartments. Temperatures called for range from 40 to 56° F., and may be controlled separately in each compartment.

Both the florist and fruit coolers are insulated with 4 inches of corkboard; average operating cost of both systems is about the same.

Bananas may be ripened in the fruit refrigerator within 15 hours by moving them from the cooler to the warmer compartment, where gas heat is used in addition to the cooling unit.

Flowers may be opened out for immediate use by changing them from the cold to the warmer compartments in the wholesale florist job.

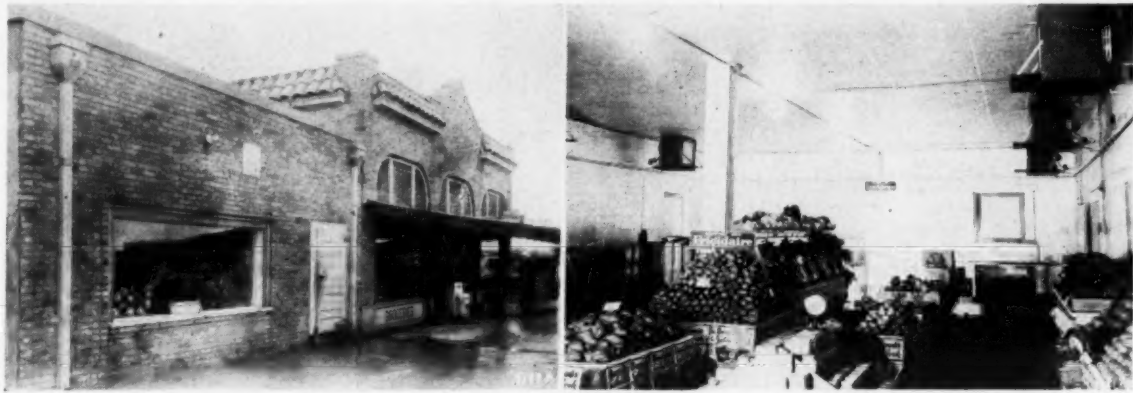
Lipman & Hammerling Join Kold-Hold

LANSING, Mich.—Increased demand for Kold-Hold cooling units for truck refrigeration and storage rooms, manufactured by Kold-Hold Mfg. Co. here, led to the recent addition of two new men to its engineering staff, W. G. Farnsworth, general manager, reports.

Theodore E. Lipman, refrigeration engineer of Beloit, Wis., came to Kold-Hold from Climax Engineering Co., Clinton, Iowa. He was previously connected with General Refrigeration Sales Co., Beloit, Wis., manufacturer of Lipman commercial refrigeration and air-conditioning equipment.

W. F. Hammerling, sales engineer, new to the Kold-Hold organization, was formerly associated with the appliance division of Savage Arms Corp., in its Ohio, Indiana, and Michigan territory. Before this, employed in Kelvinator Corp.'s export division Mr. Hammerling worked in Panama, Central America, India, Africa, and many European countries.

This Store Is a Walk-In Cooler



"Fresh fruits and vegetables" means just that to customers of the V. R. Allen Grocery, Abilene, Tex., for the whole market is a huge walk-in cooler, equipped with a Frigidaire refrigerating system and insulated with Celotex. At right is the cold storage market's exterior, showing its triple-glass window and heavy storage door. The wall-mounted forced-draft units are shown in the interior view at the left.

RACI Students Practice Commercial Work on Curtis Machine

CHICAGO—Equipment used in practical laboratory tests given to students of the Refrigerating and Air Conditioning Institute here includes a Curtis 1 1/2-hp. commercial unit, manufactured by the Curtis Refrigerating Machine Co.

The Curtis unit has a two-cylinder reciprocating type compressor using a 10-lb. charge of methyl chloride. It supplies refrigeration to a large food display case, and may be connected in multiple to a walk-in cooler and floral display case.

Students who have previously completed a shop preparatory course, given by laboratory engineers, use the unit in compiling data on tests of every kind. Not only are direct operating conditions observed and tested, but improper adjustments and extreme load conditions are purposely made to familiarize the students with problems in locating and correcting operating faults.

Using the Curtis unit, such factors as working temperature, pressure and suction line drop, pressure drop equalizing, finned coil area and placement, and others affecting operating efficiency, are being demonstrated.

Cool Dispenser Builds Counter-Size Unit

DETROIT—Cool Dispenser Co. has recently brought out a small counter size display beverage dispenser, for use in serving orange juice, pineapple juice, grape juice, buttermilk, chocolate milk, and other fruit and milk products.

A double glass dispenser with a circulating system which gives a fountain effect, the dispenser can be used in conjunction with any style or system of cooling. When arranged with a pre-cooling system placed under the counter, the beverage can be pumped directly from the pre-cooling system into the dispenser.

All metal parts in direct contact with beverages are made of stainless steel.

Equipped with a cooling system which may be connected to any system of refrigeration, the dispenser can be used in conjunction with the dealer's present equipment or connected to a 1/2-hp. condensing unit. Capacity of the dispenser is 6 gallons, with a pumping or filling capacity of 1 gallon per minute.

The dispenser may also be used in connection with ice cooling equipment.

Modern Equipment Used In Houston Dairy

HOUSTON, Tex.—A new system of refrigerating and pasteurizing equipment has been installed in the Maenza Dairy here by the Houston commercial division of York Ice Machinery Co. The plant has a capacity for cooling, processing, and bottling 200 gallons of milk daily.

Refrigerating equipment consists of a 3-hp. York Freon condensing unit, and a brine cooled dry storage compartment with capacity for 32 milk crates. Also included is a 100-gallon York "Low Boy" pasteurizer and other necessary equipment, including boiler, milk pump, aerator, and facilities for freezing four 50-lb. cans of ice per day.

Boiler and condensing unit are located in a room adjacent to the milk room. Water for the condenser is pumped from a well near the main building.

While the plant is relatively small in comparison with other installations made for the dairy industry, York engineers say it is outstanding for its modern layout of equipment.

Much Refrigeration Used In Egg Freezing Plants in China

SHANGHAI, China—From hundreds of small farms where the average number of chickens is 100, come eggs to fill Shanghai's demand for the 5,000,000 or 10,000,000 eggs needed per day in its vast frozen egg industry, the largest industry of the Chinese Empire using mechanical refrigeration.

Methods of handling, inspecting, freezing, and processing have been developed on an extensive scale since the introduction of modern refrigeration. Much of this refrigeration equipment has been installed by York, Shipley, Fed., Inc., the Shanghai branch office of the York Ice Machinery Corp.

In each of the half-dozen plants in Shanghai, 1,000,000 or more eggs per day are required. To handle these, hundreds of Chinese girls are employed in the highly specialized job of egg-breaking and egg-smelling. Henningsen Produce Co., one of the largest of these, employs approximately 600 girls in its breaking rooms.

Each egg is broken and smelled, and if properly "fresh" is dumped from the small cup in front of each girl into a large container beside her. At each row of benches is a supervisor, whose sense of smell is keener than the average. It is said that their sense of smell is so highly developed that many of these "chief smellers" can detect the presence of one bad egg in an entire tank of egg mixture.

Refrigeration equipment is important in plants, where, as in the Henningsen plant, the eggs are broken, separated (white from yolks), and frozen in "sharp" freezers where they are held at 20° below zero.

Parts of the egg yolks are dried by patented processes, and certain portions of the egg albumen are also dried for special uses. Large quantities of eggs still in the shell are frozen for shipment in crates. Inspection rules, Mr. Morrison says, make eggs frozen in China comparable in bacteria count with eggs produced in America, Europe, or South America.

Because commercial farms are practically unknown in China, the enormous number of eggs needed are brought to Shanghai from small "individual" farms via an intricate system of all-water routes. Boats sail down the Yangtze River every day to collect eggs from the various concentration points along the banks, and deliver them finally to the egg-breaking establishments.

Bernartz, Liquid Carbonic Executive, Killed

CHICAGO—Aldolph A. Bernartz, 52 years of age, assistant general sales manager of the Liquid Carbonic Corp., was killed July 26 when the car he was driving crashed into the central pillar of an underpass beneath the tracks of the Northwestern Railway, within the city limits here.

Employed with Liquid Carbonic Corp. for the past 30 years, Mr. Bernartz was a branch manager for this firm before receiving his appointment as assistant general manager.

Mrs. Bernartz, who was with him is in a critical condition.

Milk Cooling Units Are Shown to Farmers at Cooperative Meeting

SCONNELTOWN, Pa. — To focus attention on electric milk cooling refrigeration and dairy equipment, and to show the advantages of modern electric service to dairymen, a combined display and lecture meeting was held in the Brandywine Grange Hall here recently, under the cooperative sponsorship of the Esco Co., West Chester, Philadelphia Electric Co., representatives of Kelvinator and Frigidaire Corp., and local dealers.

Approximately 150 farmers attended the meeting, and viewed the display of milk coolers, refrigeration units, and dairy sterilizers which formed the central part of the exhibition arranged in the Grange Hall basement.

Principal speakers at the meeting were: Mr. Olmstead, of the Dairy Extension Department of Penn State College, and Robert Jamison, of the Esco Co.

Following the speeches, the farmers present were given blanks and requested to write in their names and addresses, the size of their dairies and the equipment which they were now using. A prize drawing was held, winners of which received door prizes furnished by the dealers who had commercial equipment on display.

Manufacturers' representatives who cooperated in arranging for the dairy show were Mr. Sinclair of Kelvinator Corp., and Mr. Lambron, Frigidaire Corp.

Included in the exhibit were a G-E ventilating fan, loaned by S. S. Fretz Jr., Philadelphia dealer, a G-E S-1 and CX lamp, and a display of the different types of lamps which have been used through the ages, arranged by Clarence Johnson and the Power Co.'s lighting sales division.

Plans are being made to hold a similar meeting for the farmers' wives, at which emphasis will be given to electric cookery and correct lighting for the rural home.

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Federal Trade Commission Decision Against Goodyear Rubber Co. in Sears Roebuck Price Discrimination Case May Be Guide in Future Contracts

NEW YORK CITY—Anticipating the significance of the Federal Trade Commission's recent decision against the Goodyear Tire & Rubber Co. as a possible preview of many of the problems which business will face with the Robinson-Patman Act recently enacted, Dun & Bradstreet, Inc., mercantile agency, has issued an analysis of the decision in its relation to the act.

The study is a consolidation of three articles by Edwin B. George, staff economist of the company's research and statistical division. Mr. George reviews the events leading up to the decision by which the Federal Trade Commission ordered the Goodyear Tire & Rubber Co. to cease and desist from according the wide price differentials to Sears Roebuck & Co. that the latter has had since 1926 under a series of long term contracts.

Dr. Willard L. Thorp, director of economic research for the agency, compares the new and old Clayton Acts and discusses the relation of the Goodyear case to the Robinson-Patman Act in a foreword to the article.

The new act, Dr. Thorp says, may be regarded as both a development and an extension of the Clayton Act.

"The old law said that discrimination must not lessen competition or tend to create a monopoly. So does the new. The new law, however, after duly reaffirming the general principle, proceeds to expound it in personal and explicit terms; competition must not be lessened between the individual seller and his competitors, or among his customers, or between his favored customers and their competitors, or even among customers of his favored customers (in the latter two cases only when the favored customers know they are favored.)

Advantages in New Law

"Under both laws," Dr. Thorp explains, "discrimination producing the above unfortunate results can be justified by lower costs of selling and transporting (the new Act adds manufacturing) to large buyers. Important qualifications in the new Act with respect to this cost test are that (1) it eliminates the troublesome provision appearing to recognize differences in quantity per se, i.e., regardless of differences in cost, as an excuse for unlimited discrimination, and (2) the Commission is now empowered to fix quantity limits regardless of demonstrated savings if big buyers are so few that the price advantage they enjoy becomes unjustly discriminatory or monopolistic.

"Other important additions within the compass of the old law," Dr. Thorp states, "are (1) the burden of proof, with respect to complaints issued by the Commission although not in civil or criminal proceedings in the courts, is transferred to the person charged with the violation, and (2) it is made unlawful for a buyer to knowingly induce or receive a price discrimination prohibited under the foregoing rules."

From the Goodyear case, which required two years to hear and 25,000 pages to record, Mr. George identifies a number of "business control" issues common to both the old Clayton Act and the Robinson-Patman Act.

Determining Cost Big Problem

Discussed in detail are the problems of determining product and customer costs, when competition among either manufacturers or retailers is curtailed, when such curtailment is "substantial," and the problem of deferring judgments and penalties until the results of a contract can be ascertained instead of at the time of signing.

In addition to the operating and legal questions, economic problems such as the "little man's rights," the definition of monopolies, the benefits or injuries arising out of arbitrary governmental action, and the possible ultimate effects on business of the philosophy inherent in the decision and in the new act are considered.

That individual manufacturers and retailers may be affected is emphasized by Mr. George in the suggestion:

"Thousands of manufacturers and distributors may be startled to learn that profound legal battles were waged over the legitimacy of certain odds and ends of practices that to them were commonplace and an unquestioned part of their whole business tradition."

The decision that the Goodyear Co. was guilty of unlawfully discriminating in price between Sears, Roebuck & Co. and other purchasers of tires and was therefore violating Section 2 of the Clayton Act reflects the issue of "when does a price differential become an unfair discrimination," an

issue which has long been a point of business conflict, Mr. George relates. He maintains that the philosophy in the decision, if carried to its literal conclusion, could affect the basic competitive position of thousands of individual establishments.

Decision May Have Widespread Effect

The Commission has had increasing difficulty in administering and applying the Clayton Act. The concepts "quality" and "cost of selling," according to Mr. George, have continually given trouble in fixing the legal status of discrimination.

The ideas of the Commission on the act and its interpretation will be put to a final test by a review of the Commission's order before the Federal Circuit Court of Appeals.

Two broad concepts of which Goodyear was convicted and from which it was ordered to desist were, Mr. George states: (1) Selling to Sears-Roebuck at net realized prices lower than those at which it sells comparable sizes, grades, and qualities to independents, making due allowances for differences in transportation and selling cost; (2) Selling to Sears-Roebuck at an aggregate price based upon cost plus a fixed ratio of profit, which is less than a price to all other resellers based upon costs as customarily computed (excluding advertising and selling expenses on Goodyear brands) plus net profits realized on such sales.

Among the high points in the de-

cision named by Mr. George was the fact that on the date of Goodyear's last contract with Sears-Roebuck a secret agreement was entered into involving the transfer of 18,000 shares of its Common Treasury Stock to Sears and the payment to the mail order house by the tire company of \$800,000 for the purchase of 32,000 additional shares as a consideration in securing the contract.

Goodyear's net price discrimination in favor of the mail order house, after making due allowances for selling and transportation costs, ranged from 11% to 22% on eight popular sizes of tires, the hearing determined.

That Goodyear also concealed from its own sales organization and from the trade generally, including Sears' competitors, the prices and terms at which it was selling tires to Sears-Roebuck was also emphasized as a salient point in the findings.

Through these agreements, the mail order house was able to undersell, at a profit to itself, all retail tire distributors, the Commission pointed out. Its retail prices on tires purchased from Goodyear ranged from 20% to 25% lower than the prices of comparable tires sold by other retail dealers except for one year.

Shapiro Has Large Group Of Dealers at Radio Show

NEWBURGH, N. Y. — Shapiro Sporting Goods Co., distributor here, held what it claims to be the most successful open house radio show in its history here July 14 and 15 in introducing the new Fada line to its dealers.

Despite the extremely high temperature, many dealers traveled as far as 150 miles to view the radio show, and the distributing company wrote the greatest volume of advance radio business since adding radio to its lines, officials report.

Springwell Hardware Co. Finds Cold Canvass Needed to Supplement Floor Traffic

By Winifred B. Hughes

DETROIT — While the hardware store handling electric refrigerators finds its greatest source of prospects in its regular store customers, the extra sales stimulation which cold canvassing supplies, is needed to do a good business in electric refrigeration, believe officials of the Springwells Hardware Co., Westinghouse dealer here.

Orders placed by the dealership since the first of the year were approximately 25% higher than those for the same period last year, according to O. A. Fredericks, specialty sales representative of Westinghouse Electric & Supply Co.

The store has been established for 16 years. It was the first firm in the neighborhood to handle electric refrigeration, and, according to Dave Sobel, proprietor, has been influential in getting electric refrigerators into the homes of 40% of the residents in its sales territory, although not all of the sales represented in this figure were made by the hardware company.

"We don't use any high pressure sales methods—they just wouldn't work out here," Mr. Sobel said.

In its place the store's two electric refrigeration salesmen canvass the territory—each man spending a day outside, and then on the floor, he explained.

The hardware store has a ready-made floor traffic builder in the post-office sub station which is located at the rear of the store, right opposite to its electric refrigeration and appliance display.

"So many people come in to the post office—especially on Saturdays, that they sometimes are lined up way out through the store. While they are

waiting to get up to the desk, they can't help but see our refrigeration display, and we get lots of prospect names in this way," said Guy Thompson, refrigeration salesman.

Users are also a profitable prospect source for the store salesman.

"I always go back to call on a purchaser within 30 days after the box is installed. On these calls, I sometimes take along a recipe book, or else I just go to inquire if there are any points about the box's operation or care which I didn't make clear when I sold it to her," said Mr. Thompson.

As an added inducement to turn his old customers into prospect lead contributors, the salesman stated, merchandise prizes costing less than \$5 are given for each prospect name turned in, on which a deal is closed.

Cessation of the FHA financing plan loans for household appliance sales did not in any way affect the sales of this dealership.

"We sold only a few boxes using these terms in all the time that the FHA plan was in effect," Mr. Sobel said.

The majority of the residents in the neighborhood where the hardware store is located are factory workers. While those who purchase electrical appliances buy them on long-term credit plans (using C. I. T. paper), in most instances, still, Mr. Thompson said, approximately 15% of sales closed are on the 90-day basis.

Handbills, and insertions in the western Detroit newspaper, are other trade-getting agents utilized by the Springwells Hardware Co. In selling refrigerators to prospects in the store, manufacturers promotional and demonstration material is used.

The Right Time Payment Plan Makes More Sales

TO get the benefit of all that a time payment plan has to offer in the way of profit-making possibilities, the dealer must take advantage of the best available service.

That service should provide a plan easy to sell, safety for all parties to the contract, be underwritten by a finance company in which the public has *unlimited confidence* and administered with *promptness, efficiency and courtesy*. Such a service plan is that offered by Commercial Credit Company through its local offices in the principal cities of the United States and Canada.

Behind the local offices which offer this plan, assuring you close personal service, stands the entire organization of the Commercial Credit Company whose record of handling more than \$600,000,000 of receivables and time payment financing during the past year speaks for itself.

Commercial Credit Company has a staff of highly trained men, who are at the service of dealers and distributors at all times. These men may be consulted on matters of financing without cost or obligation. One of them is as close to you as your telephone. Why not call him now?

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FINANCING SERVICE FOR MANUFACTURERS, DISTRIBUTORS AND DEALERS THROUGH
170 OFFICES IN THE UNITED STATES AND CANADA

Duluth Gets So Hot That Even Refrigerator Prospects Will Not Listen to a Sales Story

By T. T. Quinn

DULUTH—Natives love to remind you that Duluth is widely known as "the Air-Conditioned City," and to recall a saying, attributed to Mark Twain, to the effect that "the coldest winter I ever spent was a summer in Duluth," but on the day we interviewed dealers there the city was right in the middle of the three hottest days in its history.

Temperatures were up over the 100° mark, and had been for two days previously, but most dealers weren't doing the business you might expect from such a sudden heat spell. Their business wasn't booming because of the sudden turn in the weather—and an almost universal explanation was that it was so hot that prospects didn't want to be bothered.

Not that business was, or had been, bad. To a man, the dealers and salesmen we interviewed reported that, in general, sales were from 30 to 60%

higher than at the same time last year—with May and June a pair of record-breakers, sales in some cases going double their 1935 totals in those months.

Despite the fact that Duluth is the home of the leading ice refrigerator, Coolerator, electric refrigeration dealers did not seem unduly disturbed about any inroads that the ice box happened to be making into their business.

Pressed for an explanation, one dealer volunteered the opinion that it was another case of the "prophet without honor in his own land" variety. Long years back, as he explained it, the ice box manufacturer which had preceded Coolerator came into strained relations with Duluthians—and, while the present company is held in high esteem by the townspeople, it has had a hard job breaking down that old barrier to goodwill.

Wesco Branch Manager Says Real Market Will Develop in North Dakota if Farmers Ever Get a Crop

By T. T. Quinn

Refrigerator sales in the territory served by the Duluth branch of Westinghouse Electric Supply Co. are more than 40% ahead of their 1935 total, up to mid-July, according to J. H. Stratton, sales manager of the distributor's refrigeration department. Art Johnson is manager of the distributorship.

Business through the whole territory served by the company has been good—much better than last year, Mr. Stratton said. In fact, only one dealer is not "up" on the business he did during 1935—and Mr. Stratton hastened to explain that he wasn't far "down," the only thing that was making him look bad being the fact that all the others were doing so much better than they had last year.

Worthy of especial mention for his work this year, Mr. Stratton thinks, is his dealer at East Grand Forks, Minn.

"That's just a small town," he said, "and sales there aren't normally expected to be world-beaters. So this year we gave the dealer there a quota of only eight refrigerators. He's already sold 38 units, and tells us there are more to follow."

Five hundred per cent of quota—even when it's that small—is selling some.

Westinghouse covers a pretty wide territory out of its Duluth office—all the way across to Montana—and Mr. Stratton spends most of his time on the road, traveling from one small

town in the territory to another. Even the drought in the Dakotas hasn't kept sales from hitting good marks there, he's found—and throughout the district dealers are working hard, going after sales—and getting them.

"I'll tell you one place where refrigerator sales will take a big jump, if there's ever a good crop year in the territory," he said, "and that's North Dakota."

We wondered why.

"Why? Because North Dakota is a 'natural' for the electric refrigerator," Mr. Stratton answered. "They haven't had a good crop up in that territory for years—drought and heat burn the crops right up out in the field—and still a good many refrigerators are being sold there."

"North Dakota is a state of small towns and villages. There's no city of any great size in the whole territory. And towns are pretty widely scattered."

"Ice is hard to get—and expensive, too, after you get it—and electricity is convenient and cheap. Power lines reach out everywhere, and there are few towns—and these are the smallest—which don't have electrical facilities."

"The farmers out in that territory don't have to be sold on the merits of electric refrigeration—they've sold themselves on it years ago. They want electric refrigerators, commercial refrigeration equipment, and other conveniences—but things have just been so bad in the last few years that it's

Using the 'Value-Visualizer'



Newest Westinghouse sales demonstration aid is the "Value-Visualizer," designed to give the prospect visual proof of the unit's quality features, and the salesman a series of handy pegs on which to hang his sales points.

been out of the question to do more than think about it.

"Why, some of the last few years the farmers haven't even got back their seed on the crops they've planted. Still, they have to eat—and that's where most of the little money they've been able to get their hands on has been going."

"All farmers are gamblers, in a sense—but those in North Dakota have had to gamble so much that they make the rest look like pikers."

"Of late they've had to gamble for just the necessities of life—so anything extra has been practically out of the question. They've had to gamble on their seed, their clothing, and their food; that left little room to gamble with refrigeration or things like that."

Victims of the Weather

"Every spring, a lot of them have said to themselves: 'Things look good, and maybe now we can get that refrigerator we've been wanting.' But just when it seemed things were about ripe to buy—Blooey! would come another drought or dust storm, and everything was off."

"These farmers don't wait until fall, and buy for the next year, when they're getting refrigerators and things of that kind. If prospects are bright for a good crop, they'll buy their merchandise in the spring, and pay for it in the fall, after their crops are harvested and they've received their money. They even gamble on that—but they don't take the chance before things begin to shape up in their favor. And it hasn't been that way in the last few years."

"But the market for refrigerators—electric refrigerators—is there, and it's one that's been developing for years because of the availability of electric current and the unavailability of ice. Lean years, years of disappointing crops, have only made this desire for refrigeration stronger."

"So that's why I say: 'Give us one year of good crop prospects—and then watch sales in North Dakota!'"

Hibbing Sales Higher

Refrigerator business in the Hibbing, Minn., territory was brought to a point above last year's totals largely through an effective display at the annual Hibbing Fair, held this year on May 5, 6, and 7, Mr. Stratton said. Sales in the territory rose considerably as a result of the company's booth display at the fair.

"For one thing," said Mr. Stratton, "we kept our booth well-lighted all the time. It was really the best-lighted booth in the whole show. Our location was not particularly favorable, but we drew more than our share of attention simply because our booth 'outshone' all the rest."

"(This is hardly an exaggeration. We saw pictures of the show, and the Westinghouse booth really did stand out like a lighthouse in the fog.)"

Cutaway Does the Trick

"Then, too, we've got the only cutaway refrigerator model in this territory. We've found it effective before, but never quite so much as at this show. While rival dealers were telling their visitors how good their machines were, and how thick the insulation was, we didn't have to talk much. All we had to do was to take the visitor over to the cutaway unit, and let him see for himself how our unit is constructed."

Commercial refrigeration business in the territory has been fair, but Mr. Stratton admitted it could be a lot better. Commercial, he said, has been in the doldrums for some time, and is just now beginning to get back to where it's again an appreciable factor in total sales.

After the rush for tavern installations immediately after the return of

beer, things leveled off, and most of the commercial installations in Duluth itself—there haven't been many—have been going to the Baxter Co., a local concern which makes display cases and coolers to order for all types of commercial installations.

Trying to get business in competition with a local company which manufactures its own equipment is pretty much of a losing proposition, from the price angle—and Mr. Stratton, along with the other dealers in Duluth, has passed it up in favor of a concentrated drive for household business.

Commercial Organization

But in the outside territory it's another matter. Here, competition is not so discouraging, and Mr. Stratton is just now building up commercial refrigeration consciousness in the dealer organization.

Selling the two—household and commercial—is something you've got to separate, if you're going to make a go of the latter, he believes.

Selling commercial refrigeration is a special type of work—something in which, while orders are larger, results are often discouraging to a man who's been used to selling in large volume to a different class of prospect. Few men grounded in household selling have the "feel" for commercial.

Another thing, a dealer selling commercial equipment must have a good installation man—a man who can handle most, if not all, of the year's jobs, and who can do work so there will be no complaints. Dealers who don't want to keep the installation end of their business up to standard had better stay out of commercial altogether, Mr. Stratton thinks.

Effect of Poor Service

As a case in point he cites the experience of one of his own dealers, over in Ontonagon, Mich., who has become a sort of a joke in commercial business in that neighborhood because he allowed just one installation to go in haphazardly.

The dealer, it seems, had a rather small organization, without a full-time service man. He employed an auto mechanic to do most of his service work, and the man shouldered both jobs, since neither took all of his time. On household work and ordinary trouble-shooting, this system worked out all right.

Came the day, though, when the dealer landed a rather important commercial job in one of the town's markets. When he ordered his equipment, Mr. Stratton tells, he was asked particularly whether he had facilities for doing a good job of installation. If he needed help, the distributor would send a man to handle the work.

Job Too Complicated

The dealer thought his auto mechanic-serviceman would do all right. But it didn't work out that way. The job turned out to be far too complicated for him to handle—and the dealer was forced into the embarrassing position of having to ask one of his competitors to "lend" him his serviceman for the job.

As might be expected, this aid was refused—and the rival dealer lost no time in publicizing his competitor's shortcoming. Now the territory's commercial jobs all go somewhere else, because the word is around that this dealer couldn't install a job if he did sell one.

It was a costly error—for the dealer. And Mr. Stratton is determined it won't happen again anywhere in the territory. Either dealers will certify that they have competent servicemen, or the installation work will be done by men from the distributorship.

Minnesota P. & L. Co., Kelvinator Dealer, Reports Improved Credit Conditions

By T. T. Quinn

Manager J. A. Lynch was out when we called at the showroom of Minnesota Power & Light Co., Kelvinator dealer in Duluth, but one of the salesmen on the floor told us that the company's business, as of July 1, was about 60% ahead of what it had been at the same time last year.

Credit conditions have improved steadily, and a great many of the worries, financially speaking, that beset dealers in the territory have disappeared to a large extent, the salesman reported.

Attractive Showroom

The company's showroom was attractively set up, with a long bank of Kelvinators flanking one wall, indirectly lighted and against a background of blue and gold. Floor traffic was brisk, but whether this was because people were coming in to pay their bills, avoid the heat, or look at refrigerators couldn't be decided in a glance.

Hot weather, the salesman said, hadn't been responsible for very many additional refrigerator sales. One thing it had made great inroads on, though, was the supply of electric fans. The phone rang intermittently while we were there—and the girl's voice was almost a continuous "I'm sorry, but we haven't an electric fan in the house. We won't be able to get any more for a day or so."

People Surprised by Heat

"This is the hottest weather we've ever had around here," the salesman said, "and I think it's surprised people so much that they haven't done much of anything about it. Most of them, the way it looks, just want to stay indoors and keep cool as they can."

"The hot spell surprised us, too, but we did figure it would bring the need of refrigeration to a lot of people's attention. But I guess they don't want to talk about it, even in their homes. All they want is to lay low until this weather passes over."

Larger Units Selling Better

May and June were both good months, he said, with sales breaking records for that period in past years. Noticeable, too, is the fact that larger size units are selling better this year than ever before. People look at the 6, 7, and 8-cu. ft. units now—when formerly they were more interested in 4's and 5's.

Two men are kept working on the showroom floor at all times, catching prospects as they come in to pay their regular monthly light bills. Floor traffic of this kind is fairly steady, and a number of sales have resulted from prospects contacted this way.

Canvassing and tips from users continues to be the most prolific source of prospects, particularly the latter. And a contest, conducted by the utility and participated in by local dealers, for the best short letter on "Why I Want an Electric Refrigerator," also brought in many names not previously on prospect lists of any sort.

Interest is also kept alive among prospects by stuffers with the customer's monthly electric bill.

Wolverine Tubing Never Lets You Down

You can be sure of Wolverine Copper Refrigeration Tubing—sure that it has the quality that never lets you down.

From selection of original materials to the final inspection, every step in manufacture is closely controlled to make quality certain.

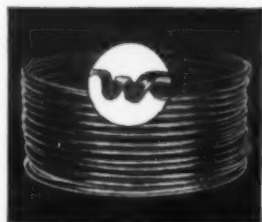
Electrolytic copper 99.9% pure, is cast and rolled into a billet, which is then machined to remove all scale, sand inclusions, defects, etc. The billet is then hot extruded by a process pioneered by Wolverine. In this process the metal actually flows—it is not cut or torn. Density is increased, porosity prevented, and the inside is given a mirror-like finish.

Drawing operations reduce the tubing to final size, after which it is annealed to uniform soft temper for easy bending and handling.

Dehydration and final inspection are carried out with greatest care, after which each length is sealed against entry of moisture or dirt by the "W" crimp at each end.

Coils are packaged in heavy crepe paper, with the size, length and type identification plainly marked on the outside. This further protects the tubing—assures its delivery to you in first class condition.

Protect your refrigeration installations by using Wolverine Tubing. Made to A. S. T. M. Specifications B 68-33.



WOLVERINE TUBE CO.

SEAMLESS COPPER BRASS & ALUMINUM

1411 Central Ave.

Detroit, Mich.

H. M. ROBINS CO., Export Factor

SCURLOCK KONTANERETTE KITS For All Refrigerators

"A flip of the finger and the Kontaner is before you."

REFRIGERATOR SALES INCREASED A COMPLETELY EQUIPPED REFRIGERATOR

That's what Kontanerette Kits mean to you. Offers an appeal to every prospect... Convenient and Economical. They will purchase it eventually... why not add to your profits. Sell an up-to-date refrigerator.



Retails \$2.75

Seven Kits—price range Retailing \$2.00 to \$4.95

Peak refrigerator sales—selling Kontanerette Kits

Saves 30% space over use of old-fashioned round jars.

SCURLOCK KONTANERETTE CORP. 1477 Merchandise Mart - Chicago

Duluth Glass Block Co., Department Store, Uses Gauges & Meters to Make Frigidaire 'Proof' Display

By T. T. Quinn

Duluth Glass Block Co. department store handles Frigidaire as its principal refrigeration line. An attractive Frigidaire "proof" display, complete with gauges and meters, featured its third floor display section, with a 6-cu. ft. model as a guidepost, just as you get off the elevator.

Manager Berry of the electric appliance department reported sales were considerably better than at the same time last year, with prospects bright for a continuation of the active selling season on through July and August. The sudden hot spell, however, hadn't done much to speed sales.

Frigidaire's "proof" material has been of considerable importance in helping sales along this year, Mr. Berry said. The visual demonstration, he thinks, drives home points far better than words could ever do.

The store has three salesmen in its appliance department, all of them working on a straight commission. Floor days are assigned to each man, and the other two spend all their free days outside the store, contacting prospects either through canvassing or tips from users.

Best Leads from Users

Canvassing isn't so popular with the men, Mr. Berry says, and the best leads are those picked up from users, or from prospects who visit the store. Users who furnish leads resulting in sales receive a small gift in appreciation of their interest and help. Old and well thought of, the store has many customers who buy from it because they know it is dependable, Mr. Berry says, and this fact alone brings in a good share of prospective buyers.

One thing about the local situation that isn't at all pleasing to Mr. Berry is the fact that customers, most of them, start in talking about price before they even inspect the refrigerator.

Some of this talk, he believes, is bona fide—he has instances where local competitors have lopped 10 and even 20% off the purchase price to get the order. A lot of it, however, is just the customer's quaint way of trying to get a bargain.

"On several of the reported price cuts," Mr. Berry said, "we called the dealer in question—and he denied having done anything of the sort. Of course, that puts us in a spot with the customer, and it's hard to get

an order after you've practically called the prospect a liar.

"Sometimes, instead of calling the dealer who's supposed to have made the cut, we just offer to do so. Most customers, rather than be caught in their net, back down in a hurry and admit they might have heard wrong, or that a friend of theirs told them the dealer was giving a discount. That gets around the matter more easily."

Mr. Berry thinks he has found a way to work out the trade-in question, which, he admits, has been something of a problem lately.

"We don't take in used refrigerators," he said. "In most cases, you can't do it without hurting the customer's feelings. It's something like trading for a used car—the old relic takes on a new value when you think of getting rid of it."

Handling Trade-In Problem

"Ice boxes? Yes, we'll trade for them; but on used mechanical units, we tell the customer frankly that we wouldn't be able to give him as much for his refrigerator as he might get if he sold it to someone else himself. We explain that our trade-in allowance must be such that we can dispose of the box quickly, at a fair price."

"Advertise that you have a used refrigerator for sale," we advise prospects who have a used box. Chances are you'll find that someone has been looking for something just like what you've got to sell."

"This plan has worked out for us, and it's pretty well cleared up what looked like it might be a ticklish problem. Of course we do take in a used boxes, if we must—but this plan has cut down that part of the job a lot."

About that time a married couple came in to look at a 6-cu. ft. model, and the salesman on the floor went through a complete demonstration—we thought he did a pretty convincing job of it.

After they had gone, he dropped by to say: "That's a typical sales talk around here. That couple came in here wanting to buy a used ice box for about \$15—or less. They heard we had some for sale. I tried my best to steer them off that track and around to buy a new electric refrigerator—but I don't know."

"At least they're worth following up." He wrote down an address in his little black book. "You never can tell about prospects."

Representative of Reinhard, Norge Distributor, Says Bonus Payment Brought Cash Sales

A. J. Lindgren, Norge dealer, was busy with office work when we called, and took time only to inform us that business was "all right—yes, a good deal better than last year," before turning us over to Mr. Harvard, field man for Reinhard Bros. Co., Norge distributor out of Minneapolis.

Mr. Harvard, whose experience in selling runs back through the piano and automobile industries, told us that Norge business in the Reinhard territory was about 40% better than last year, despite all the drought discouragements and other economic ills common to that section.

The payment of the soldiers' bonus in June, he said, had done a lot for refrigeration business in the northwest. Refrigeration dealers, he thought, especially Norge dealers—he knew about this—had got their share

of this ready-to-be-spent cash, despite vigorous competition from practically all other fields.

Best thing about all this business, too, was that it was all cash—right on the line. He recalled dealers' stories of several instances where families had wanted refrigerators for some time, and were able to realize their ambitions when the bonus money arrived. He imagined it had been something of a battle, too, in some cases—with the husband holding out for a new car, and wife insisting on a new refrigerator.

"Well anyway," he said, "the ones who bought refrigerators with part of their bonus money were getting their dollars' worth."

"And that's a lot more than you can say about a lot of other ways in which some of them spent it."

General Appliance Co., G-E Dealer, Finds Price Cutting Disappeared with Warmer Weather

At General Appliance Co., General Electric dealer, we walked in just as Sales Manager Hoyle was unpacking a batch of green, red, yellow, and brown ties for his salesmen to use in a current contest.

"You know," he said, "I figure this sort of a contest will really make the men get out and do something. It gets awfully tiresome wearing the same old tie around day after day."

Refrigeration sales generally, Mr. Hoyle said, were from 20 to 25% up on their totals at this same time last year. The hot wave, he thought, would work out to the advantage of Duluth dealers, by bringing the need of adequate and up-to-date refrigeration to the minds of buyers—although he said that sales had been neither slowed up nor accelerated by it, so far as he had noticed.

"Our men are still out working, in spite of the heat," he said, "and none of them has reported anything unusual in prospects' behavior, one way or another. I do think, though, that when the hot weather's over, sales will go up somewhat."

"We had a tough break from the weather here in the early months of

the year, and that held back some sales. This hot weather looks to me to be a break in our direction, to sort of make up for the delay we had in getting started. It ought to just about even things up all the way around."

Sales in some instances have been rather rough going, because of vigorous price competition from rival dealers, Mr. Hoyle reported. He hadn't thought this particularly vicious, and it had eased off some with the coming of warmer weather; probably it was just the anxiety of dealers to make a showing in the early days when it looked like the hot spell might never come.

The store has a special built-in bungalow, a one-room affair, in the back section of its display room. Here are shown a refrigerator, range, washer, radio, and other appliances handled by the company. Used as a "closing room," the space has worked out very well, Mr. Hoyle said. Salesmen who get the prospect in there can be sure of undivided attention, and it has closed, in short order, a lot of sales that might otherwise have been a long time in coming.

Nordal Co., Westinghouse Dealer, Reports Sales Increase during July Heat Wave

By T. T. Quinn

One refrigeration dealer who was finding things more than busy during the three-day heat wave was H. L. Nordal Co., Inc., handling Westinghouse equipment.

The company's service man was working about 16 hours a day, making installation of new refrigerators and adjustments on those already installed—and there were a couple of service calls outside the regular territory that came in while we were there. One of them was in a town about 200 miles away, and the service man faced the prospect of starting out about 4 o'clock next morning on what would be an all-day job.

During the heat wave Nordal sold nine Westinghouse units—three on the first day, none the second, and six the third.

The company is in a new location, having taken over the place last August. June was a record-breaking month, Mr. Nordal told us, with sales double what they were during that period last year.

The bonus had been a big aid to bringing the month's business up so high, he said. Best thing about it, too, was that the sales had all been for cash.

"A lot of sales that had been on the fence came through right after the bonus money was received," Mr. Nordal said. "In some cases, the families bought their refrigerators before they got their bonds, and paid off in full right after they'd had them cashed."

One corner of the dealer's showroom was taken up by a model Westinghouse all-electric kitchen, which Mr. Nordal said had been in-

moved to its new location. While all-stalled shortly after the company had electric kitchen sales were not a leading factor in business as yet, Mr. Nordal believes the display is proving worthwhile in selling the idea, and will result in sales of a far greater variety of home appliances in the future.

Nordal Co. has six salesmen selling refrigeration, radios, and other appliances, and Mr. Nordal was concerned over the difficulty of obtaining men who were worth their salt.

"It's hard to get men who are good, and who'll stick," he said. "We have a force of six men, but only about half of them are really of the quality we'd like to have. These three men do practically all of our selling—the others don't do much more than clean up what these men don't have a chance to get."

"Good appliance salesmen are certainly scarce."

First person we had met in the store was a sandy-haired Irishman named Fitzpatrick. Since Duluth is overwhelmingly Scandinavian, we wondered just how well he was able to do there. Mr. Nordal soon settled that.

"There's one of our best," he said. "Irish, but he can talk their language, and knows how they think and how to handle them. He speaks a little of their tongue—so well, in fact, that some of the old-timers start up a conversation with him, just like he'd come right from the old sod."

"That stops him, for a while—but he arouses their interest and friendliness, and he gets along with them fine."

Best job the dealership does, Mr.

Nordal said, is in radio. Right now radio sales are averaging \$2,000 a month; two cabinet models were sold, for delivery the next day, during the short time we were in the store.

The company had one of the Winter Air display cases on the floor, but Mr. Nordal said commercial business, in general, was pretty slow.

"Of course, we haven't really been set up to do much of anything about it," he qualified. "Most of our emphasis has been on household refrigeration. But commercial business, what there is of it, is pretty much price-ridden. Commercial case companies are still handling a line of condensing units carrying their own name, and selling them for little or nothing, to get full price for the case."

Stewart-Warner Factory Employees Get Vacations

CHICAGO—Stewart-Warner Corp. and its subsidiaries are inaugurating a program of annual vacations with pay for factory employees, Joseph E. Otis, Jr., president of the company, announced last week.

The 1936 program calls for each factory employee who has been in the employ of the company for one year, or more, to be given one week's vacation with pay.

Due to difficulties in staggering production, all vacations for factory employees are being given at one time in the Stewart-Warner and Alemite Corp. factory units. These two divisions closed down on the evening of July 31 for inventory, and resumed production on Monday, Aug. 3, with a skeleton force of those employees who are not entitled to a vacation.

The radio division will continue full operation during the vacation period due to large orders for shipment which are on hand at the beginning of the heavy production season in this division.

Are you ready to expand?

The sales record—

Refrigeration and air-conditioning sales are again making spectacular gains. Over a million and a half household units in just six months—more than the total for any whole year previous to 1935. It looks good, doesn't it?

Commercial sales, after several hard years, are now clipping off high records again. Air conditioning also showed substantial gains throughout the Spring. Yes, it looks good; and it is good.

Export business—

One of the most attractive opportunities for manufacturers at the present time is the active foreign market.

Refrigeration is "catching on" in a big way in a great many countries in various parts of the world. American made equipment is highly popular.

Large mercantile firms in the major trading centers are seeking distributorships for reputa-

ble lines of refrigeration and air-conditioning equipment, parts and supplies.

In recovery years—

Business is on the upswing—and those who take advantage of their opportunities now will soon be far ahead. Those who welcome improved conditions as a chance to slacken their pace will probably be left behind.

The opportunity ahead—

Merely having a good product isn't enough. New companies are entering the field, new buyers are in the market, more people are wanting information about products and sources of supply. They naturally turn to the industry newspaper for information.

To win their business, and to build a stronger position in the face of competitive appeals, keep your sales message constantly in the advertising columns of ELECTRIC REFRIGERATION NEWS and the supplementary books for refrigeration men which are in such active demand.

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How Distribution May Be Affected By New Law

SINCE THE PASSAGE of the Robinson-Patman law June 19 there has been some speculation as to how this recent piece of Federal legislation, aimed at preventing price discriminations favoring large purchasers at the expense of smaller ones, would affect the household electric refrigerator industry.

As far as the NEWS has been able to determine, no legal expert with a knowledge of the problems of the electric refrigeration industry has made an interpretation of the law as it relates to manufacturer-distributor and distributor-dealer relations.

However, a number of "curb-stone opinions" have been offered by various interested persons in the industry expressing the feeling that the law may possibly affect the following business relationships:

1. Price discrimination by manufacturers of complete household electric refrigerators in favor of large buyers, such as department stores; also, purchase by major retail outlets of large job lots of a particular model or series for promotion purposes.
2. Granting of special prices to buying "syndicates" of retail outlets which buy in quantity lots.
3. Granting of "spiffs" or other special sales and advertising helps by a manufacturer to quantity buyers.
4. Price discrimination through "brands," whereby a mere change in the nameplate or some minor changes in design are used as the basis for a considerable differential in price between two refrigerators made by the same company, and which are very nearly identical.
5. Special prices offered by manufacturers of principal parts, such as cabinet or compressor, for a household refrigerator to large assemblers, such as the mail-order houses, selling through wholly-controlled outlets.

Observers feel that generally speaking any matters of price discrimination between distributors and dealers would not be covered by the Robinson-Patman law, as such relationships are in the realm of intrastate commerce rather than interstate commerce, and hence are not governed by the law.

The concept of the law is so broad, the transactions which it attempts to govern so complex, and the phraseology of the Act so intricate that it is said that

it will "create more business for lawyers and accountants than the Sherman anti-trust law, the Clayton Act, and the NRA together." Officials of the Federal Trade Commission, who will administer the law, are said to be appalled by the task confronting them. There has been some indication from the FTC that its administration of the law will be conservative and reasonable.

The following analysis of the law is explanatory of its chief provisions, and affords the reader an opportunity to conjecture as to how they may apply to various business practices in the refrigeration industry.

As the Robinson-Patman law is in effect an amendment to the Clayton Act of 1914 some reference and comparisons to that law are necessary.

The Clayton Act allowed price discriminations "on account of differences in the grade, quality, or quantity," but the Robinson-Patman law eliminates the word "quantity" from this provision and sets forth a new requirement.

This is brought out in Section 2 (a) of the new law which says:

"that nothing herein contained shall prevent differentials which make only due allowance for differences in the cost of manufacture, sale, or delivery resulting from the differing methods or quantities in which such commodities are to such purchasers sold or delivered."

During the debate of the law in Congress it came out that objections to the Clayton Act provision permitting discriminations on the basis of quantity were based on the sometimes outlandish discounts offered to very large purchasers, such as chain stores, and that the low prices resulting from such large quantity discounts were intentional discriminations in favor of the large purchasers.

The new requirement permitting quantity discounts only where they represent actual differences in the cost of manufacture, sale, or delivery resulting from the quantity sold or the method used in making delivery, presents a problem because of the difficulties involved in making an exact determination of the differences in the cost of manufacture, and in the expenses of selling and of delivery.

The ramifications of this problem constitute one of the reasons why some legal experts doubt the constitutionality of this provision.

One provision of the Robinson-Patman law gives the Federal Trade Commission the power to establish the maximum limits of the quantities for which discounts may be given. Before the Commission can fix such limits it must find:

"that available purchasers in greater quantities are so few as to render differentials on account thereof, unjustly discriminatory or promotive of monopoly."

This is apparently designed to keep a seller from setting a discount only on quantities so large that the smaller purchaser could never purchase in such quantities, thus placing him at a disadvantage as against larger purchasers. There seems to be considerable doubt about the constitutionality of this provision, because the power given to the FTC is not properly defined.

Where under the old law price discrimination was forbidden only

"where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly in any line of commerce"

in the new law there is added the following:

"or to injure, destroy, or prevent competition with any person who either grants or knowingly receives the benefit of such discrimination, or with customers of either of them."

Effect of this latter addition to the law is that price discriminations are forbidden not only where they would lessen competition or

create a monopoly, but also where the effect may be to injure, destroy, or prevent competition.

Under the Robinson-Patman law it is provided that in any complaint brought by the FTC on the charge that a forbidden price-discrimination exists, the person or firm so charged has a right to show

"that his lower price . . . was made in good faith to meet an equally low price of a competitor."

This is a new provision, and its meaning appears to be somewhat in doubt. It would seem to open the way for lower prices and the granting of quantity discounts upon sales made on a fair and proper basis, for the true purpose of meeting a competitive low price.

Section 2 (d) of the Robinson-Patman law forbids payments to a customer as compensation

"for any services or facilities furnished by or through such customer in connection with the processing, handling, sales, or offering for sale, of any products or commodities manufactured, sold, or offered for sale by such person, unless such payment or consideration is available on proportionally equal terms to all other customers competing in the distribution of such products or commodities."

There seems to be some confusion between this provision and that of Section 3 which forbids any person:

"to be a party to, or assist in, any transaction of sale, or contract to sell, which discriminates to his knowledge against competitors of the purchaser, in that any discount, rebate, allowance, or advertising service charge is granted to the purchaser over and above any discount, rebate, allowance, or advertising service charge available at the time of such transaction to said competitors in respect to a sale of goods of like grade, quality, and quantity."

Chief difference between the first provision and the second one is that the first provision says "available on proportionally equal terms" while in the second it just says "available."

Main aim of these provisions is to stop manufacturers from making payments to retail customers for the purpose of having them give special promotional effort to the manufacturer's product, unless such a proposition is available to all of his customers.

Some are of the opinion that the apparent full meaning of this provision makes it unconstitutional, for a number of reasons, and that such practices can be continued if the payments are made for genuine services, rather than as a camouflaged secret rebate.

Letters

Sure Gives the News All Right

Marshall-Wells Co.
2824 10th Ave., Minneapolis, Minn.
July 21, 1936.

Editor:

Enclosed find \$1.00 for which please mail me four copies of the ELECTRIC REFRIGERATION NEWS back issue which gives the specifications on all the 1936 domestic refrigerators.

The NEWS sure gives the news all right and is a powerful constructive factor in the entire industry.

R. L. KOTTER.

In the Refrigerating Business 40 Years

F. G. Robinson
Ingeniero Y Contratista
Calle 8 Entre Ave. 12Y13 Almendares
Habana, Cuba
July 27, 1936.

Gentlemen:

Kindly accept my thanks for your prompt attention in entering my subscription of recent date covering your valued publication of which I have received the first two copies.

Having been in the refrigerating business for the past 40 years, of which 26 have been spent in this country, during this entire period I

have read many publications relative to refrigeration subjects and I am pleased to say that yours is about the best that has come to my notice.

I shall be pleased if you will have my name and address added to your mailing list of manufacturers, and favor me with all possible literature of interest.

Trusting that you will grant this request, I thank you.

F. F. ROBINSON.

Will Recommend the Manual in Tunis

Comptoir de la Machine a Coudre
E. D. & J. Sitbon, Proprietaires, Agents
Exclusifs des Machines "Phoenix"
Direction: 22, Avenue Roustan-Tunis
Succursale & Depot: 42-44 Rue de la
Verrerie
July 24th, 1936

Gentlemen:

I have received a few days ago the MASTER SERVICE MANUAL and I am getting now regularly the ELECTRIC REFRIGERATION NEWS for which I have put in a yearly subscription.

I have found them both to be of great help and will sincerely recommend them whenever possible.

I will appreciate it very much if you will kindly place my name on your free mailing service list.

ED. D. SITBON

Objects to Ice Box Advertisement in News

Frigidaire Corp.
Subsidiary of General Motors Corp.
1100 Main St., Buffalo, N. Y.
Aug. 3, 1936.

Advertising Manager:

For a good many years ELECTRIC REFRIGERATION NEWS has been thoroughly read and in many cases, quoted from by the writer during his Frigidaire contacts with dealers.

In the past I have had a great deal of respect for your paper, but you have not only dropped a lot in my personal estimation, but have laid yourself wide open for an abundance of criticism with the "ice-box" ad that you ran on page 3 of the July 8, 1936, issue.

In this same issue your reporters went quite a bit into detail discussing the refrigeration situation in Buffalo, stating that competition is tough, and that it is hard under normal conditions to sell electric refrigeration in this town.

Only a few weeks ago the writer personally solicited 20 of the retail Frigidaire salesmen of Buffalo, getting each one of them to subscribe for a year. If my own personal chagrin was the only item at stake, I would not bother writing, but the "ice-box" ad has these salesmen asking questions, particularly in view of the fact that all of our own tests and many of your previous articles have proved quite definitely that an ice-box does not give proper refrigeration conditions.

If you have any plans to continue Coolerator or other ice-box ads, please strike my name from your list, and just as a suggestion, it would be more appropriate if you changed the name of your paper from ELECTRIC REFRIGERATION NEWS to REFRIGERATION NEWS.

J. F. CAIN.

Answer: Your criticism seems to be based upon a misconception of the service of the NEWS and its editorial and advertising policies.

Readers should understand that there are several distinct types of material published in this paper including (1) News, (2) editorial opinion, (3) reader's opinions, and (4) advertising.

Different viewpoints govern the selection (or acceptance) of "copy" for each of these various divisions of the paper.

In the news columns we report the news as it happens without regard to whether we like it or not. We try to keep the news columns free from personal opinion. Whenever it seems to be necessary for the reporter to express his own views, the article carries a "by-line" giving the name of the author.

The editorial columns (usually in a center page, under the "masthead") are reserved exclusively for expressions of opinions by the editors.

The "Letters" columns offer readers a place to express their own opinions. Obviously we do not approve all of these views just as we do not agree with the notions of Mr. Cain about advertising.

The advertising columns are open to all comers (with a few exceptions) who desire to sell something—or say something—to the industry.

Ordinarily we do not attempt to pass judgment on the merits of their merchandise or question their right to present their arguments according to their own ideas.

As mentioned above, there are some exceptions to this general rule. We have refused to publish advertising for patent medicines and other products entirely foreign to the scope and character of the NEWS. We have refused advertising from concerns known to be irresponsible, or involv-

ing propositions which we suspected might be fraudulent.

In general, however, we do not consider it necessary to guide and protect our readers in their dealings with advertisers since the NEWS goes mainly to experienced business men who are competent to use their own judgment and take care of their own interests.

A considerable number of readers have indicated that they not only know how to run their own business but feel sure that they could also run ours much better than we do.

Mr. Pemberton Gets a Load Off His Chest

Refrigeration Engineering & Service Co.
198 Winton Rd., N., Rochester, N. Y.
July 24, 1936.

Gentlemen:

Your editorial, "Why Retailers Go Wrong On Price Cutting," in the July 15 issue is very interesting.

Strange to relate, in our fair city of Rochester, N. Y., it is not the "back alley" dealers whose competition is disastrous and dastardly. Oh my, no, but our local power and light corporation, our friend and ally. That is, by their own declaration they are our friend and wish to help us.

Here is a short resume of conditions that the independent refrigeration organization has to contend with in our city. Refrigerators have been sold at wholesale to utility employees, who in turn retail them at wholesale to an acquaintance or friend, absolutely no regard being paid as to where these refrigerators were going.

Another mighty argument used by this corporation in the sale of refrigerators is, "lifetime free service." We don't quite understand whether it is the lifetime of the purchaser of the machine, or the lifetime of the machine, in any case, it is much too long.

Price cutting on commercial installations when one or more independent refrigeration organizations are bidding on a job. Sale arguments furnished by high company sales officials regarding the manufacturer of . . . refrigerator being on the verge of bankruptcy when their own firm is operating in the hands of receiver-ship. Misinformation about the five-year guarantee of certain of their household refrigerators.

In this city the local gas and electric company is the originator and sponsor of the no down payment, long term, low finance plan and not the F.H.A. In other words, our municipal pride and glory, our model of integrity and character, is a rat in wolf's clothing.

We agree with your article, "that all buyers are not fools." If they were, in the face of such competition we could sell nothing. These conditions outlined are not the activities of a few overzealous salesmen, but men whose work proceeds with the full knowledge and cooperation of the responsible department heads.

We have heard, from a very reliable source, that their refrigeration department operates annually at a net loss of \$25,000. And yet, they are actively and extensively engaged in the sale of every type of electrical appliance, particular stress being placed upon electric refrigerators.

Commercial installations have even been offered without any down payment. In other words, their entire business procedure is far from orthodox, and is absolutely ruthless as far as maintaining any price level is concerned. All of which has been denied from time to time by company officials.

In the past week we consummated a sale of . . . refrigerator in the face of such competition and down-right misrepresentation by one of their sales force. After the sale was completed and delivery had not yet been made, a master salesman of the local power and light company called at the home of the purchaser, urging him to break this deal at all costs as . . . manufacturer was on the verge of bankruptcy. The same master salesman was practically thrown out of the purchaser's home. And this is the way our local power and light company extends a helping hand in return for increased line load.

Sooner or later, legislation will be in effect that will prohibit a public utility from retailing any appliance or electrical machine, and the sooner the better for all independent electrical merchandisers, particularly refrigeration dealers and contractors.

This picture is not drawn from a distorted, opinionated idea of one refrigeration contractor who has lost a few jobs to the local power and light company, but is a consensus of opinion of dozens of refrigeration dealers and contractors in Rochester.

So you see, our bone of contention isn't the activity of the "back alley" refrigeration dealer, but the activities of a powerful utility company. The same type of corporation whose activities you so often praise in your paper.

G. A. PEMBERTON,
Manager.

Air Conditioning

Carrier Sells Line of Home Conditioners

NEWARK—Development by Carrier Engineering Corp. of a line of residential air-conditioning and automatic heating equipment in two sizes, for use with either oil or gas furnace, for winter or year-round service, has been announced by L. R. Boulware, vice president and general manager of the company.

Maximum ratings of the Carrier Home Air Conditioner are 190,000 B.t.u. and 323,000 B.t.u. per hour, respectively, for oil; and 150,000 and 260,000 B.t.u. for gas. Because of the unit design of the furnace and air conditioner, floor space required for the two sizes is only 27x46 and 27x67 inches, respectively.

Filters are of the throw-away type, and are replaceable through a removable panel in the casing. Humidification is provided with an evaporative pan-type humidifier, equipped with complete and remote control.

A forward-curved blade fan is utilized, for quietness, and a modulation control using the Carrier bypass principle insures economy of recirculation without continuous burner operation. Acoustic elbows and flexible canvas duct connections are other aids to quiet operation. Duct connections may be made from either side or top.

Heating coil is of the fin type, increasing radiating surface with minimum space requirements. For the smaller size, the radiation area is 88.7 sq. ft.; for the larger size, 177.5 sq. ft.

For summer air conditioning, space is provided for the insertion of a fin-type cooling coil for use with Freon or cold water.

Heating is supplied by the Carrier Home Furnace, using oil or gas, and also available in two sizes. Special steel boiler is designed for maximum efficiency, is insulated, and has a low water line. For oil firing, a cast refractory tunnel is used. The hot gases are deflected against the under side of the crown shield of the boiler, and on into the 28 tubes. Spiral baffles in each tube extract further heat.

Maximum ratings for equivalent unit radiation are: steam, 790 and 1,350 sq. ft.; water, 1,260 and 2,160 sq. ft. Overall efficiency claimed is 80%.

Flexibility of design, it is said, permits installation of the equipment with existing steam or hot water, automatic or manual boilers. Air-conditioning unit only may be mounted from the ceiling, side duct connections being provided for this installation. The conditioner is also adaptable to the "split" system heating.

Carrier oil burner is of the gun type.

The Home Air Conditioner consists of two basic units—the furnace and the air-conditioning unit. The former is floor mounted, and the latter placed on top of it.

Using a Coat Closet



Close-up view which shows how a Delco-Frigidaire conditioner, installed in the clothes closet, cools a guest sleeping room in the Kentucky hotel, Louisville. The compressor is remotely installed. Conditioned air is delivered through metal grilles, and the occupant controls the operation of the conditioner through a wall thermostat.

6-Story Penney Store In St. Joseph, Mo., Conditioned

ST. JOSEPH, Mo.—A year-round air-conditioning system has recently been installed in the basement and first three floors of the six-story J. C. Penney Co. department store here. St. Joseph Railway, Light, Heat, & Power Co. handled the installation, using equipment furnished by B-D-R Materials, Inc., Frick distributor.

Refrigerating machine used is a Frick 8 $\frac{1}{2}$ x6 compressor, and is charged with Freon-12. The machine is operated by a 50-hp. motor with only one speed available. Control layout, however, is such that not less than two of the four conditioning units used in the system can be in operation at one time.

Basement and third floor units are tied in together, and the first and second floor units are similarly paired. This arrangement gives a fairly even distribution of loads, since the work in the basement is light and that on the third floor comparatively heavy.

Low Humidity of Value

Operated with full compressor capacity at half load on the low side and using dry-bulb control, there will be a comparatively low humidity. This is considered desirable, however, in a store where a quantity of rayon dress materials is handled, since this material makes a better appearance and rustles to full advantage when humidity is low. Minneapolis-Honeywell compensated dry-bulb controls are used.

Buffalo Forge conditioners are used in the system, and are generally located in furred spaces above the toilets, directly adjacent to the pipe risers. The basement unit discharges into two ducts, but all others have one duct only. There are no branch ducts.

No Deflectors in Ducts

Conditions in the basement are crowded, and space was not available for installing scoops or cores inside the ducts. Tendency for the air to go past the first openings is counteracted by throttling the distant ones, thus making up for the lack of deflectors.

General pattern of the refrigerating plant is the same as that used in the National Reserve Life Insurance Co. building in Topeka, Kan., which also uses Frick equipment.

A Marley cooling tower is located on the roof of the building. Since this is not directly over the machine room, there are horizontal runs of discharge pipe both at the top and bottom to take up the expansion or contraction of the lines.

Shell and Tube Condenser

The horizontal shell-and-tube condenser is located inside the cooling tower. Discharge line is of 4-inch size for about three-fourths its length, and is then dropped to 3-inch, on the theory that this would blow-through any condensed oil or liquid.

All Freon pipes are coupled with streamline fittings. Wiring is so arranged that the compressor cannot start until at least two of the solenoid valves are open, the blowers are running, and the water pump next to the tower has developed a pressure on the water line.

Innovations in the system were designed by J. A. Harton, who engineered the job for the Light, Heat & Power Co.

Air Conditioning Used In Fermenting Room Of Boston Brewery

BOSTON—The Boston Beer Co., brewer since 1828, has installed in its fermenting room a York air-conditioning system to insure a temperature of 40° F. for the fermenting process and to eliminate the dropping of frost from the exposed pipe coils formerly employed.

The air-conditioning equipment, which is custom built, was installed in cooperation with Schwarz Laboratories, Inc., consulting engineers.

Because the fermenting room of the brewery is fitted with several large open type fermenting vats, the particular function of the air-conditioning system is to keep the air at uniform temperature so that the fermenting will proceed as scheduled.

The system also introduces a constant supply of fresh air from outdoors to replace the carbon dioxide gas which is generated and exhausted by the fermenting process.

Carrier Sets an Installation Going



Willis H. Carrier, chairman of the board, Carrier Engineering Corp., officially puts the new air-conditioning system at Chicago's Stevens hotel into operation. On Mr. Carrier's right are Rufus C. Dawes, president of the Stevens Hotel Corp.; J. L. Neudoerfer, vice president, Wheeling Steel Corp., which furnished pipe and sheet steel for the system; and W. H. Krahl, vice president of the Stevens Hotel Corp. The group at the left of the control panel includes E. P. Heckle, Carrier vice president; R. B. Hayward, president, R. B. Hayward Co., Chicago contractors; O. I. Strickland, Wheeling Steel Corp.; J. C. Hines, Hayward Co.; and E. F. Murphy, Carrier vice president. With the new system, it is claimed, the Stevens has the largest number of air-conditioned ballrooms, meeting rooms, public dining rooms, and lobbies of any hotel in the world. The hotel now has 11 conditioned assembly rooms, seating 6,225 persons.

Movie Distributors in Okla. Equip Offices

OKLAHOMA CITY—Air conditioning installations were made recently in the local distributing offices of Paramount Pictures Distributor Co., Inc., and Twentieth Century Fox Film Corp., by W. C. Dance Co. of this city.

The Twentieth Century Fox installation conditions a general office, private office, film inspection room, and review room, a total volume of 25,235 cubic feet. A 15-hp. Frigidaire unit was used.

The installation, a duct system, employs a motorized damper for controlling the temperature in the review room, since variable occupancy and intermittent use of the room makes independent temperature control a necessity.

At Paramount, the equipment conditions the general office, one private office and the film inspection room at one time. When the review room is in use, the room can be cooled by a damper arrangement which cuts down the air input to the office.

Equipment at Paramount includes a 10-hp. Frigidaire unit. The total volume conditioned was 36,340 cu. ft.

4 Portable Units Cool Landon Headquarters

TOPEKA, Kan.—No matter how hot a campaign the Republican party wages this summer, the principals will be cool and comfortable, thanks to four York portable air conditioners just installed in Gov. Alf M. Landon's Topeka headquarters.

The equipment, three BA-100's and one BA-75, was sold by Midwest Grunow Co., distributor of York portable units in this territory.

● America is rebuilding: new factories, new buildings, new homes . . . homes which are being equipped with the latest time-and-effort-saving household appliances. It is no coincidence that so many of the refrigerators, washers, ironers, air conditioners and oil burners which go into these new homes are Delco-powered. Wise buyers have come to look upon Delco-powered appliances with special confidence—just as progressive manufacturers and dealers have come to favor Delco motors for their quiet operation, dependability and long life.

DELCO PRODUCTS CORPORATION, Dayton, Ohio
Made in Canada by McKinnon Industries, Ltd., St. Catharines, Ont.

Air Conditioning

Hertzler Analyzes Application Factors Affecting Selection of Air-Conditioning Equipment

AN analysis of the actual conditions of operation which a refrigerating system should be designed to meet when installed for comfort cooling, and new considerations in the establishment of a basis for the proper balancing and selection of compressor, condenser, and evaporator, were presented by John R. Hertzler, manager of the air-conditioning division of York Ice Machinery Corp., before the American Society of Refrigerating Engineers and the American Society of Heating & Ventilating Engineers at the joint session which these two societies held during their recent annual conventions.

It has been established, said Mr. Hertzler, that the refrigeration load in comfort cooling is divided into the following parts: (1) heat transmission through walls; (2) sun effect; (3) outside air load; (4) people; (5) electrical load.

According to Mr. Hertzler, any analysis of load factor which is based on a constant indoor temperature, such as the design temperature for the maximum outdoor dry-bulb, is not a true consideration of the load factor in accordance with the recommendations of the A.S.H.V.E., and is further not a true load factor in accordance with usual method of oper-

ation adopted by owners of air-conditioning plants.

In giving examples of calculating the load factor for outside air, Mr. Hertzler assumed that air would be supplied to the conditioned spaces at a constant dew point temperature of approximately 54° F. to produce an indoor dew point temperature of 57° F.

On this basis, refrigeration would be required to cool the outside air whenever the outdoor wet-bulb temperature is above 54° F. It was further assumed by the author that only air would be passed through the dehumidifier when the outdoor wet-bulb temperature is lower than the indoor wet-bulb temperature.

From an analysis of Weather Bureau records of New York City for the years 1925 to 1931, Mr. Hertzler produced Table 1, showing the number of hours from 8 a.m. to 5 p.m. daily when wet-bulb temperatures between the tabulated limits occur. Average refrigeration load for the outside air and the ton hours of refrigeration per season for each of the groups of outside wet-bulb temperatures also are tabulated.

Table 1—Load Variations in Cooling Outside Air to 54° F. Wet Bulb

Outside Wet Bulb Temp.	Hours	Average Load In Tons	Ton Hours
79° F.-75° F.	105	100.0	10,500
74° F.-70° F.	275	74.5	20,500
69° F.-65° F.	330	50.6	16,700
64° F.-60° F.	275	29.1	8,000
59° F.-55° F.	160	10.4	1,665
Total	1,145 hours		57,365

Maximum Load at 77° F. wet bulb = 100 tons.

Load Factor Outside Air = $\frac{57,365 \text{ ton hours}}{1,145 \text{ hours} \times 100 \text{ tons}} = 50\%$

Dividing the operating season of the refrigeration equipment into five periods for outside wet-bulb temperatures as tabulated, that is, from 79 to 75°, 74 to 70°, etc., the refrigeration load in ton hours per year required for cooling outside air would be 57,365 ton hours out of a possible total of 114,500 ton hours for 1,145 hours total operation, which results in a load factor of 50% as indicated.

This method of estimating load requirements due to outside air, said Mr. Hertzler, generally produces a result which is higher than the actual due to the fact that the final wet-bulb temperature calculated leaving the

equipment is lower than the indoor wet-bulb temperature. He believes, however, the basis used is one which more nearly approaches the actual than an analysis based on maintaining the inside wet-bulb temperature at the design condition for the assumed outdoor maximum.

Method of obtaining the overall load factor of an office building or department store internal load, which constitutes chiefly the electrical and people load, assuming population densities and lighting loads on a unit of square feet of floor area of the conditioned space, was explained by Mr. Hertzler.

Figuring Load Factors

Mr. Hertzler showed how with a knowledge of the electric lighting load in watts per square foot, on which the load factor is 100%, and further knowing the square feet of floor area per person in the conditioned space, as well as an approximate load factor on the average number of people for a given space, the overall load factor on light and people or the overall internal load factor may be determined directly from a prepared curve.

Knowing the division of internal load, the load on a given job due to outside air and heat transmission and the load factor on the internal load, it is possible from Fig. 1 to obtain directly the overall load factor for a particular installation, said the author.

Thus, with a 55% load factor for an internal load, as determined from the previous example, and a division of 40% outside air and transmission load and 60% internal load, the overall load factor for the plant under consideration would be 53%.

This value is obtained by reading vertically upward on the 40% outside air and transmission load line to the 55% load factor on internal load line, intersection at 53% overall load factor.

Assumption to Be Made

It is proposed, said Mr. Hertzler, that the assumption be made that the transmission load and sun effect load vary approximately in the same proportion as the outside air load when measured by the wet-bulb temperature, assuming a constant dew point of 54° F. leaving the dehumidifier. For the condition of operation, as previously explained, the outside air load, transmission load and sun effect would have an overall seasonal load factor of approximately 50% for most human comfort applications which may be extended to include the eastern and central parts of the country.

On the basis of this assumption, the load factor on comfort cooling jobs approaches 50% as the proportion of internal load to total load decreases and falls between 50% and the load factor on internal load, for conditions where the load factor on the internal load of a given installation is in excess of 50%.

This analysis, said Mr. Hertzler, may be used only for buildings cooled during the period between 8 a.m. and 5 p.m.

Machine Ratings

Because refrigeration equipment is not uniformly rated at definite conditions as to evaporator and condensing temperature, it is difficult to rate a machine for a specific capacity unless the actual operating conditions at which this capacity is obtainable

Figure 2

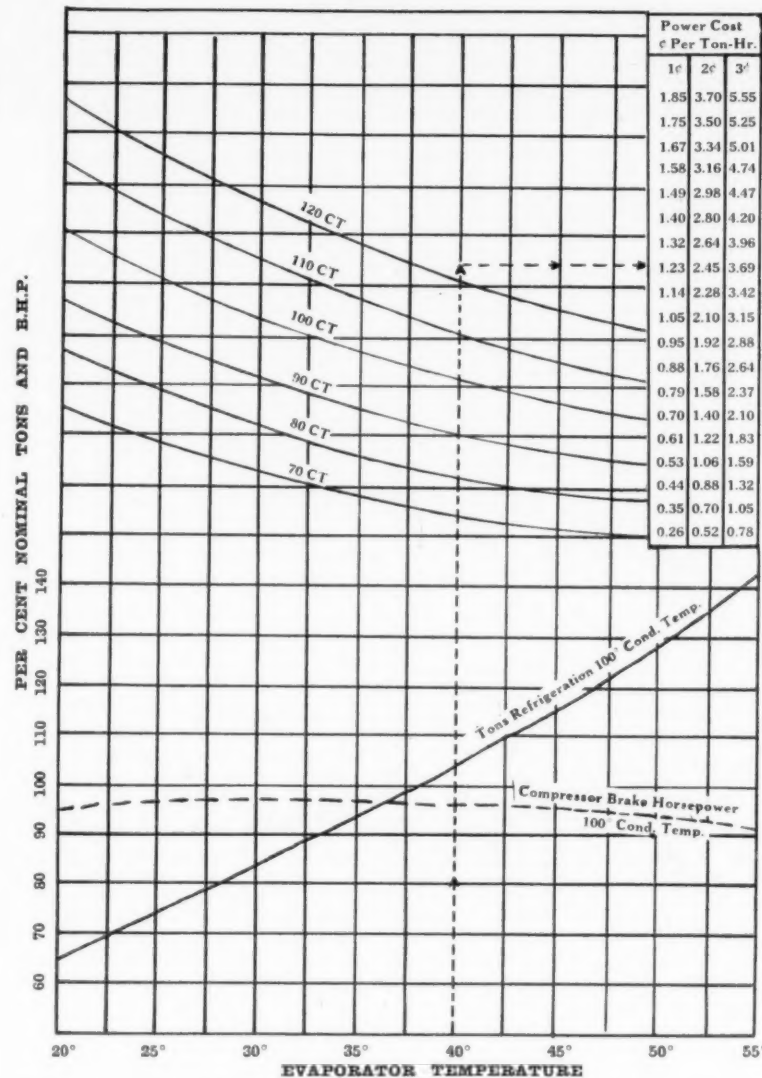


Fig. 2 shows refrigeration capacity and power curves for varying evaporator and condensing temperatures.

are stated, declared Mr. Hertzler. It is desirable that ratings at standard air conditioning evaporator and condensing temperatures be published, York's air conditioning chief declared.

Mr. Hertzler cited an example to show how for condensing temperatures of 70 to 120° F., and for a 40° F. evaporator temperature, the capacity of one compressor varies from 125 to 90% nominal tons.

Throughout the same range of condensing temperature operation the brake horsepower varies from 55 to 123% bhp. nominal. In the lower part of Fig. 2 tons of refrigeration and brake horsepower at constant condenser temperature of 100° F. for varying evaporator temperatures from 20 to 50° F. are shown.

By this, declared Mr. Hertzler, it is shown that the compressor operated by the same motor at 20° F. would have a capacity of 66% nominal tons of refrigeration when requiring

96% nominal brake horsepower, and would have a capacity of 127.5% nominal tons of refrigeration and require only 93% nominal brake horsepower at 50° F. evaporator temperature.

The absolute necessity of fixing the operating conditions for a given compressor is indicated by reference to these curves, said Mr. Hertzler.

In the upper part of Fig. 2 is shown the cost of power in cents per ton hour for a wide range of evaporator and condensing temperature conditions at which the compressor is operated. These power costs are tabulated for a unit price of 1, 2 or 3 cents power cost per kwh.

The proper proportion of condensing surface to be used in connection with a large refrigeration system is an economical consideration, stated Mr. Hertzler.

An increased amount of condensing (Continued on Page 13, Column 1)

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Figure 1

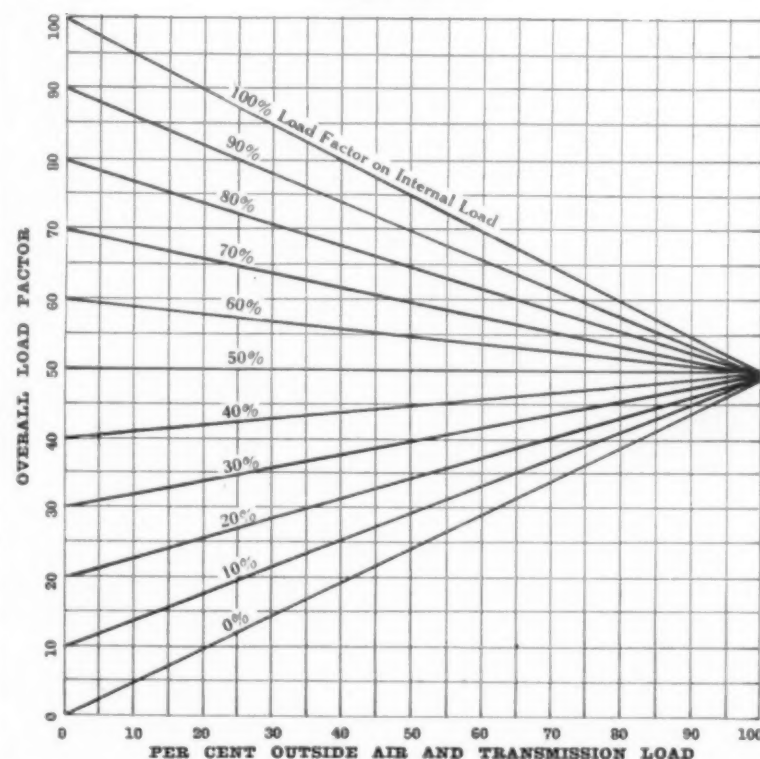


Fig. 1—Overall load factor curves for various outside air, transmission, and internal load factors. The method of using the chart is explained above. The outside air conditions are based on New York City Weather Bureau records of 7-year average from 8 a.m. to 5 p.m. daily.

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ANSUL CHEMICAL COMPANY
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Hertzler Tells Use Of Cooling Towers In Air Conditioning

(Concluded from Page 12, Column 5)

surface, he pointed out, will provide a reduced operating cost for a Freon refrigeration system, but will involve an increased first cost to the consumer.

The limit to which condensing surface should be added for improving operating economy is thus dependent upon the power saving which would be obtainable with a larger condenser. It was also shown by Mr. Hertzler that the condensing surface furnished for a given compressor would vary for cooling tower installations as compared to city water installations.

A basis for determining the economical limitations of design and cost are shown in Fig. 3, which indicates the difference between the final condensing water temperature leaving a cooling tower and the outside wet-bulb temperature entering the cooling tower, for various conditions of load. This curve is based upon the assumption that at no load the water would leave the cooling tower 2° F. above the entering wet-bulb temperature, whereas for full load the difference between the leaving water and entering wet-bulb temperature would be 8° F. While these conditions vary in accordance with the tower design they are approximate average values which may be used for this basis of comparison.

Varies with Load on Tower

It is demonstrated by this chart that for conditions of less than full load, the difference between leaving water and entering wet-bulb temperature varies in direct proportion to the load on the tower.

Mr. Hertzler cited studies to show that for an installation which at maximum load required 100 tons of refrigeration (of which 47.5% of the total is due to outside air and transmission and 52.5% of the total is internal load on which there is an overall internal load factor of 70%) using a nominal condenser rating of 10 square feet of condensing surface per ton, for power at 1 cent per kwh., 8 square feet of surface per ton would be most economical.

For power at 2 cents per kwh., 9 square feet of condensing surface per ton gave the lowest annual fixed and operating cost for the condenser. For a power cost of 3 cents per kwh., 10 square feet would be most economical.

Power Requirement Greater

It was also noted that the power required by the compressors was 30% greater utilizing city water maintained at a constant discharge temperature of 93° F., than would be the case with a cooling tower system of the forced draft type using outside air for cooling the condensing water in the system.

This power saving for the compressor, pointed out Mr. Hertzler, would be offset by the water pumping cost required for circulating the condensing water through the condenser and the cooling tower, and would further be offset by the fan horsepower utilized by the fans for a cooling tower of the forced draft type.

Since the condensing water cost was not included in this comparison, the economy of installing a cooling tower was not established by this analysis. Mr. Hertzler declared that it is generally true, however, that the power required for operating the refrigeration compressor in an air-conditioning system is less for a cooling tower installation than would be the case with a city water system, in which the amount of city water used is controlled from the discharge temperature of the city water leaving the condenser.

Reduction in Pumping Costs

Where a forced draft tower is applicable, or where it is desired to locate a cooling tower indoors, said Mr. Hertzler, it is possible to build

Table 2 — Cost Analysis of Cooling Tower Application

Wet-Bulb Temp. Range	Tons of Refrig.	Diff. Water Leaving Tower and Wet-Bulb Temp.	Temp. Water Leaving Cooling Tower	Cooling Tower Water Range for 300 G.p.m.	T ₀ -T ₁ 80% Nom. Sq. Ft.	Cond. Temp.	Evap. Temp. 40° F. at 100 Tons	Cents/Ton Hour 1 Cent/Kwh.	Ton Hours	Operating Costs
79-75	84.25	7.1	84.10	8.4	13.7	106.2	41.6	0.88	8,850	\$ 77.80
74-70	72.15	6.5	78.30	7.2	11.9	97.4	42.8	0.73	19,820	144.80
69-65	60.75	5.65	72.65	6.07	10.4	89.1	43.9	0.58	20,000	116.00
64-60	50.55	5.05	67.05	5.06	9.1	81.2	44.9	0.46	13,900	64.00
59-55	41.75	4.5	61.50	4.2	7.9	73.6	45.8	0.35	6,680	23.40
										\$426.00

Wet-Bulb Temp. Range	Water Leaving Cond.	T ₀ -T ₁ 90% Nom. Sq. Ft.	Cond. Temp.	Cents/Ton Hour	Operating Costs	T ₀ -T ₁ 100% Nom. Sq. Ft.	Cond. Temp.	Cents/Ton Hour	Operating Costs
79-75	92.5	12.25	104.8	0.87	\$ 77.00	11.3	103.8	0.84	\$ 74.30
74-70	85.5	10.8	96.3	0.70	139.00	10.1	95.6	0.68	135.00
69-65	78.7	9.5	88.2	0.57	114.00	8.8	87.5	0.56	112.00
64-60	72.1	8.3	80.4	0.44	61.20	7.7	79.8	0.44	61.20
59-55	65.7	7.3	73.0	0.34	22.70	6.7	72.4	0.34	22.70
					\$413.90				\$405.20

Wet-Bulb Temp. Range	Water Leaving Cond.	T ₀ -T ₁ 120% Nom. Sq. Ft.	Cond. Temp.	Cents/Ton Hour	Operating Costs	T ₀ -T ₁ 150% Nom. Sq. Ft.	Cond. Temp.	Cents/Ton Hour	Operating Costs
79-75	92.5	9.8	102.3	0.83	\$ 73.50	8.3	100.8	0.80	\$ 70.80
74-70	85.5	8.8	94.3	0.67	133.00	7.4	92.9	0.65	129.00
69-65	78.7	7.7	86.4	0.55	110.00	6.6	85.3	0.53	106.00
64-60	72.1	6.8	78.9	0.43	59.80	5.9	78.0	0.42	58.40
59-55	65.7	6.0	71.7	0.33	22.10	5.1	70.8	0.32	21.40
					\$398.40				\$385.60

Figure 3

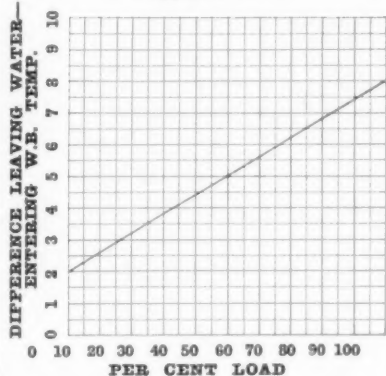


Fig. 3—Forced draft cooling tower performance curve for varying load capacities.

the refrigerant condensing coils in the cooling tower spray chamber which reduces the usual water pumping cost required in an ordinary forced draft cooling tower water system.

The fan horsepower is comparable to a forced draft cooling tower of the usual design, and condensing temperatures obtainable are dependent upon the amount of condensing surface installed in the combined cooling tower condenser per ton of refrigeration, and the final wet-bulb temperature of the air leaving the combined cooling tower condenser.

According to Mr. Hertzler, it is of greater importance when making operating power comparisons to consider the condensing temperature rating of the cooling tower condenser rather than the actual fan and motor pump horsepower requirements.

Savings Due to Lower Temperatures

In most cases the power requirements of the refrigeration compressor will be 10 or more times that of the cooling tower condenser. Thus economies of operation may more readily be obtained by reducing condensing temperature than would be possible by refinements of fan and pumping arrangements.

Due to the relatively greater importance of the heat of the liquid Freon, a reduction in condensing temperature will likewise cause an increased capacity of the refrigeration compressor in addition to a decreased power input to the compressor motor. Thus, said Mr. Hertzler, a reduction in condensing temperature is of greater importance than subcooling of the refrigerant, because of reduced power requirements as well as increased capacity where the compressor displacement remains constant.

Discussion of Evaporators

In discussing evaporators, Mr. Hertzler declared that it is possible,

in the application of air cooling with direct expansion, to locate the cooling coils in the spray chamber of an air dehumidifier.

This method of design, he said, obtains all of the advantages of a spray type dehumidifier without enlarging the cross section of the equipment, provided the evaporator coils are properly designed.

Because of the high heat transfer obtained with a water spray on the exterior surface of the direct expansion evaporator piping, fins are of no particular advantage, with the result that bare pipe coils have an installation advantage in the spray type chamber of air dehumidifiers.

The flooded evaporator method of operation is preferable to thermostatic expansion when the coils are located in the water spray of a dehumidifier because of the smaller temperature difference used for economical compressor selection and operation, Mr. Hertzler declared.

One of the principal advantages of the dehumidifier system as enumerated by Mr. Hertzler is that the air leaves the apparatus in a saturated state, so that the relative humidity in the conditioned space is more closely controlled.

Smaller Duct System Possible

A duct system designed for the same inside temperature and humidity may be smaller in area with an air dehumidifier of the spray type than with a surface coil type installation.

The minimum capacity at which an air-conditioning plant will be required to operate will determine the minimum number of refrigeration compressors necessary, or will dictate the number and types of capacity reducing devices which will be installed for a given compressor.

Most large Freon reciprocating compressors, explained Mr. Hertzler, are equipped with hand or automatically operated capacity reducing devices which will permit economical operation at partial loads down to approximately 50% of the maximum capacity.

If the load analysis indicates that a further reduction in capacity will be necessary for certain periods of

operation this can be applied to a single compressor installation by furnishing speed reduction on the compressor motor down to 50% of maximum speed, thus reducing the capacity of the compressor to 25% of maximum by the combination of capacity reducing devices on the machine itself and reduced speed operation.

Adjustable Speed Control

Adjustable speed control, said the author, is especially desirable on an installation where the driving motors operate on direct current because of the economical operation obtainable by means of field control of a d.c. adjustable speed motor.

On alternating current installations multi-speed motors are applicable up to 150 hp., and where direct-connected synchronous motors are used it is desirable to increase the number of compressor units to obtain the minimum refrigeration capacity and flexibility of operation required.

Where refrigeration units are installed in multiple for a given installation, it is generally advantageous to have the compressors installed so that all of the condensing surface and all of the evaporating surface can be utilized for all conditions of operation, which results in a direct operating economy as shown in Table 2, according to Mr. Hertzler.

Lower Cost for Lower Load

It has been indicated that the kilowatt input per ton to an electrically driven Freon compression type refrigeration system is reduced for partial load operation provided the full condensing and evaporator surface is utilized at all loads, said the author.

In a previous study by Mr. Hertzler it was shown that economy dictated the use of 9 sq. ft. of condensing surface per ton. When operated at half capacity, with the evaporator temperature constant, the brake horsepower per ton of refrigeration was reduced 9%.

By raising the evaporator temperature 5° F. at half load operation, with the condensing temperature held constant, the brake horsepower per ton would be decreased 9.5%; or combined, the saving by using the

full condensing and evaporating surface for operation at half load would be 17.7% in brake horsepower per ton. Since the compressor motor efficiency was 4% lower at half speed than at full speed the full saving of 17.7% was not obtained, but the net saving was sufficient to justify the installation of a single cooler and condenser to be used with a variable compressor capacity. Operating costs may be reduced as much as 25% by utilizing this arrangement of equipment selection.

It is therefore desirable, concluded Mr. Hertzler, to parallel condensers or evaporators, or to install more than one compressor to operate on a given condenser and water cooler. This method of application may be considered a standard arrangement of design because of the resultant reduced operating costs when using Freon equipment.

The operating economy of a refrigeration system at partial load, he pointed out, is more important than the economy at full load, because the system operates at less than full load more than 80% of the time.

Brunner Issues One Catalog On Condensing Units & One on Complete Line

UTICA, N. Y.—Brunner Mfg. Co. has just issued two new pieces of sales literature—a broadside describing its line of condensing units, and a catalog listing its complete line of refrigerating equipment—which it is making available to its distributors and dealers.

The broadside lists a total of seven Brunner air and water-cooled condensing units, ranging in size from 10 to 1/2 hp., and adaptable for use with either methyl chloride, Freon-12, or sulphur dioxide as the refrigerant.

The 36-page catalog lists five compressors and 47 condensing units, air and water cooled, ranging from 100 lbs. to 15 tons of refrigeration, and from 1/4 to 15 hp.

Individual Units Described

Individual condensing unit models are described, their features listed, and specifications and capacities given, for both Freon and methyl chloride, when a choice of refrigerants is permitted.

Five compressor models are listed, with capacities ranging from 1/4 to 10 hp., and with construction and specifications details included. Cut-away drawings of both the single and twin-cylinder compressors make them easily understandable to the technically inclined.

Two Gasoline-Powered Models

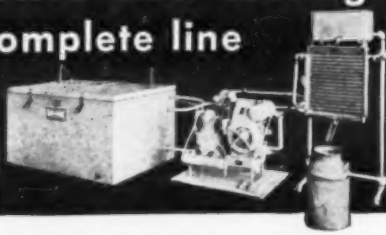
Two gasoline-powered models are listed of 1 and 1 1/2-hp. capacity. These are identical in capacity and specifications to the motor-driven units of similar size, except that they use gasoline engines.

Four tables at the back of the catalog detail the method of figuring refrigeration loads for commercial applications, including walk-in coolers, grocery, butter box, and hotel refrigeration, display cases, and double-duty or freezer cases.

Brunner's new line of equipment has been meeting with increased acceptance in the field, reports B. J. Scholl, secretary of the company. Business for the first six months of 1936 is 140% above the corresponding period in 1935.

Williams ICE-O-MATIC milk cooling equipment—most complete line in the industry

It's easy to sell Williams Ice-O-Matic... the most flexible line in the industry. All styles and sizes and to fit every purse. Electric or gasoline drive. No "parts" problem. Dependable. Quiet operation. Costs less to run. Highly efficient Methyl Chloride gives faster cooling. Made by the world leaders in temperature control. Write for details of franchise now.



WILLIAMS OIL-O-MATIC HEATING CORP.
World's Largest Specialists in Temperature Control
Dept. 823, Bloomington, Illinois

WILLIAMS
ICE-O-MATIC
REFRIGERATION

CURTIS REFRIGERATION

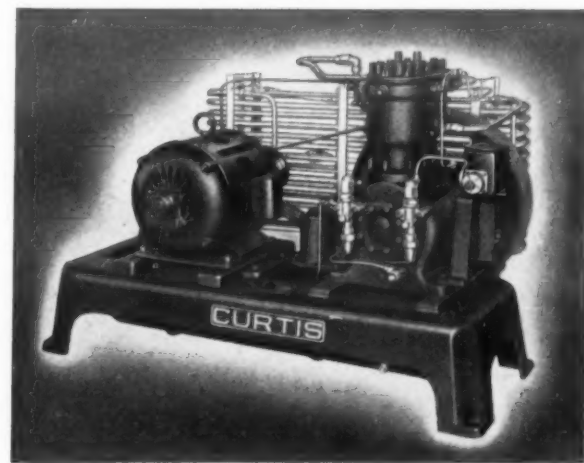
Units to fit every need

Curtis, one of the oldest compressor manufacturers, offers an unusually complete line of refrigerating units—1/6 to 2 H.P. air cooled; 1/3 to 30 tons water cooled—reflecting 82 years of successful engineering, designing and manufacturing experience. Some desirable territories are still open for reliable distributors.

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1854

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CURTIS



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Division of Curtis Manufacturing Company
1912 Kienlen Avenue, Saint Louis, U. S. A.
In Canada
CANADIAN CURTIS REFRIGERATION CO., LTD.
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Around the World

With George F. Taubeneck

NOTE: See news story on front page of this issue.

Suez Canal

General Badoglio had marched triumphantly into Addis Ababa (a poor setting for a triumphal procession, I take it) shortly before we started our crawl through the Suez Canal; and already shiploads of Italian soldiers were homeward bound along the same artery of navigation.

Crowded to the gun's, they were; and all singing and shouting "Du-chay, du-chay" and "Viva-something-or-other." Except for the occasional flash of a decorated concertina and the not infrequent white of bandages, the packed masses of humanity were of the same gray-green-dirt color of the ships which bore them.

All along the canal workmen were busy on the banks. Some said that the British were fortifying the canal; others that it was simply routine maintenance work.

When a large vessel came along going in the opposite direction, it became necessary for one of the two to tie up to the bank and let the other pass. Traffic seemed heavy.

Central Local Administration of the Canal, at Ismailia, keeps the exact position of each vessel in the Canal charted on graphs, and sends traffic orders out to the 13 signal stations located on the banks. Ours, being a mail steamer, was given the right-of-way; although tidal and wind conditions sometimes are the determining factors in the decision as to which vessel will moor while the other passes.

Speed limit is 6½ nautical miles per hour. At night the ships are provided with powerful locomotive headlights which throw a strong beam of light for hundreds of yards down the canal.

It takes about 12 hours for a big boat to traverse the canal; and the fee for one the size of the *Maloja* costs some thousands of dollars, I was told. When you consider that from 15 to 20 big boats go through every day, plus many more smaller ones, you can get a faint idea of what a good business the Suez Canal does.

Northern entrance to the canal is Port Said, Egypt. Southern entrance is at Port Tewfik. Visible from this point is the shining city of Suez. About 25 miles from Port Said is Kantara, which is the western terminus of the railroad to Palestine,

constructed by the British under General Allenby during the World War.

Before the Suez Canal was constructed, freight was transported from Cairo to Suez (a very old city) across the desert on camels; passengers, on camels and by horse-drawn conveyances.

One may still see vestiges of the ancient canal from the Red Sea to the Nile Delta. It was constructed by the Pharaohs, and rehabilitated successively by the Persians (400 B.C.) and the Moslems.

Ferdinand de Lesseps was the man who brought the present Suez Canal into being. In 1856, with the support of the Khedive of Egypt, he formed the Suez Canal Co. (Compagnie Universelle de Canal Maritime de Suez). The capital stock consisting of 400,000 shares, issued at 500 francs per share. France subscribed for more than half of the shares within a few weeks after de Lesseps floated the company. Next largest shareholder was the Ottoman Empire. Neither the United States nor Great Britain bought any shares at all.

It took more than ten years to build the canal, and—including developments since—cost \$280,000,000. Empress Eugenie formally opened the canal November 17, 1869.

From Port Said to the Suez Bay, the canal is 87½ miles long. Originally 72 feet wide, the canal now has a minimum width of 135 feet, with a projected minimum width of 196 feet, and 250 feet at the turns. Depth is 40 feet. No vessel of more than 33 feet is allowed to enter.

More than 55% of all the ships which pass through fly the British flag. Yet it was only through accident, the alertness of Lord Beaconsfield and the foresight and daring of Disraeli, that Great Britain came to own shares in the canal.

Beaconsfield learned that Ismail Pasha was pressed for money. Disraeli assumed responsibility for the purchase of the Khedive's shares in the canal company and Baron Rothschild put up the \$20,000,000 which the Khedive asked—a most irregular procedure.

Eventually, the transaction was sanctioned, and England owned 176,602 shares in the company, or seven-sixteenths of it. Since that time (1875) this investment has earned more than eight times its original cost, in interest and dividends. In 1927, for instance, the British government re-

ceived \$7,750,000 in dividends, and valued its shares at that time at \$152,601,750.

Frenchmen run the canal from an executive standpoint, and 21 of the 32 directors are French. Ten are British; one is from Holland. The Dutch are the second largest users of the canal, with 10% of the total traffic. German ships are third, and French vessels fourth. France, you see, has a pretty good thing in this fortunate investment.

Another Canal

My British friends in India and Egypt, and aboard the P. and O. boats, are inclined to believe it may be necessary to build a new canal through Palestine. Here are the factors in the situation behind their rather startling surmise:

The Suez Canal concession expires in 1968. Back in 1909 the Suez Canal Co. requested the Egyptian government for an extension of the concession. This request was rejected with such finality that the company has assumed that there is no hope for continuance of its life after 1968. Egypt, then, proposes to take over and keep the profitable canal.

Shortly after the opening of the canal, an International Convention signed an agreement to the effect that the fees were to be the same for all nations, the canal to be open to merchant vessels of every nationality, and that the canal be free and open in times of war as well as in peace.

Egypt, however, as sole owner could abrogate this treaty completely. And that canal is too vital to Great Britain, both to its commerce and to its defense, to risk even preferential treatment, let alone possible blocking in time of trouble.

It is pointed out, moreover, that the Suez Canal is obsolete (reason enough in America for building a new one). It isn't wide enough, it isn't nearly deep enough for the super-ships of today, and it is too slow.

Why not, then, construct a new canal through the British Mandated Territory of Palestine? The suggested route begins west of Gaza and follows straight through to the Gulf of Akaba, which connects with the Red Sea.

It is claimed that a modern canal along this path could be built in shorter time and for less money than de Lesseps required to build the Suez Canal; and that it would pay for itself in two decades or less.

Even if such plans don't go through, they can be used as a weapon in bartering with Egypt for a new contract on the old Suez Canal.

Introducing

Among the most interesting passengers aboard the *Maloja* was the Maharajah of Jaipur (an internationally known polo player), and his lovely daughter, to whom I had the honor of losing in the finals of a ship's contest; an English representative of Socony-Vacuum from India, and another from Persia, who supplied much interesting information on the part oil plays in international politics; a 6 ft. 4 inch professional bird catcher (he had the right build for his unique profession) bound for the London zoo with a collection of weird feathered specimens from Tibet and the Himalayas; and two New Zealand dairy farmers, with their families.

Aden, Arabia

Aden was a *papier mache* stage set for a romantic musical comedy. It simply couldn't exist, one felt, when the steamer sidled up obliquely toward the mass of volcanic rock which rises out of the sea so abruptly.

It was nearing sunset when the *S. S. Maloja* slipped between the half dozen trim British destroyers poised at anchor in the Aden roadstead, and Shum Shum, the mountain peak which towers with such majestic grimness behind the Gulf of Aden, was painted with rich reds and browns—like autumn leaf tints, or those of an Arizona landscape.

A quick ride to the shore in a motor launch was followed by a tortuous ascent into the burnt rocks of Aden Peninsula, and soon we were peering upward at a hole in a cliff where—'tis said—the body of Cain is buried, while his soul does penitence for the slaying of Abel.

One was in a mood to believe this story in such a setting, nor was it difficult to credit that other legend of the place: that Aden was a pleasure resort of the Queen of Sheba in the days when she and King Solomon begat the forbears of Haile Selassie.

The 1,500-foot climb into the Main Pass, which has been cut out of solid rock, has the nobility and grandeur of natural beauty which has held sway for so long that its history fades into the mists of pre-Old Testament times.

And then, the Tanks. Cradled in a long-extinct volcanic crater, these

water reservoirs are cut out of solid rock and completed with masonry.

In a descending terraced series of dams and reservoirs, the seven main dams have a total capacity of 20 million gallons. They are filled by rains at odd intervals ranging up to ten years.

Even today that reservoir system would be considered remarkable engineering. But the fact is that they were built by the Phoenicians about 3,000 years ago!

Among the wonders of this tank system is the unique concrete with which the masonry has been built. Engineers have declared that no concrete work existing anywhere in the world is so solid, so hard, or so resistant to corrosion. The secret of its compound is lost in antiquity.

For centuries these tanks lay buried under silt, boulders, and debris washed down from the mountain sides; but in the Nineteenth Century they were rediscovered by British Army engineers, who set about excavating them.

Since that time they have gone into service again; although today artesian well water is obtainable at so low a price in Aden that the inhabitants no longer make much use of the tank water.

Not far away is the oasis of Sheikh Othman, where jen-you-wine Arabs go about their appointed tasks oblivious to the presence of strangers.

Salt drying (by evaporation of sea water) and fishing are chief industries of Aden. The age-old Dhow, ship of Arab seamen since the beginning of the trade with India and the Orient, is made in a local shipyard.

From the desert of the Yemen plateau, inland, camels come to Aden bearing—like those of the Three Wise Men who followed the Star of the East to the manger in Bethlehem—incense and myrrh. And, it might be added, additional cargoes no quite so pleasant to the olfactory nerves: hides.

It's a magical, mystical place, this Aden. Wonder why it hasn't been the setting for more novels and novellettes?

Arabian Trading Co.

I had dinner on the night of my arrival with A. D. BETHELL, general manager of the Arabian Trading Co., and his wife in their luxurious apartment high above the street level.

It was a tasty meal of indigenous fish and vegetables, served with sauces that gave me a healthy respect for native cooks in Arabia.

The Bethells were charming people. English, they lighten the burden of their commercial exile in this jumping-off place with good literature (including *ELECTRIC REFRIGERATION NEWS*) and a short-wave radio which—praise be—brings in the chimes of Big Ben in London.

A British firm, the Arabian Trading

Co. buys and sells practically everything which can be imported into or exported from this corner of Africa. It has branches in Addis Ababa (only about 400 miles away—one could almost hear the Italian guns booming), Djibouti, Harraar, Berbera, Hargeisia, Burao, Hodeidah, and other spots in—or close to—recent news.

Electrolux kerosene-operated and Westinghouse electric refrigerators are sold by the Arabian Trading Co. Mr. Bethell has a 7-cu. ft. Westinghouse in his apartment; but that's just about the only sale he's made. Reason: electric current is sky high.

His chief refrigeration business is the kerosene-operated Electrolux.

A. BESSE, a Frenchman, has the Kelvinator agency in Aden; but he, too, is handicapped by electric rates.

A. M. KLANDER, an American, rents Frigidaires at 15 rupees per month to the English people who come out on contract to work in Aden for two or three years.

P. GALLINO, manager of the Twentieth Century Exports Co. (an American firm), also has a rental program, along with the General Electric agency.

Power rates in Aden are about 4½ annas per kilowatt hour; and the monthly cost of current for operating an electric refrigerator runs from 15 to 25 rupees (about \$10).

Monthly cost of a kerosene-operated Electrolux in Aden, according to Mr. Bethell, is about three rupees (\$1.20).

Winter temperatures vary from 75° to 85° F., while summer temperatures run up to 105°. Added to these rough-on-refrigerators conditions are the great extremes of humidity experienced in Aden—it's either very dry or very wet.

Porcelain-finished refrigerators are demanded in Aden. Machines stand up well enough if there is plenty of power in the motor, but they have lots of trouble with thermostatic controls.

Population of Aden (white) is about 2,000, most of whom are soldiers. Some 200 of these are officers, and prospects for refrigerators. However, they are given an *ice allowance* (14 rupees per month) which they lose if they turn to another method of refrigeration.

Civil population (white) is about 200, most of whom are in Aden for a stay of two or three years.

Considering these circumstances, the fact that there are 200 refrigeration units in use in Aden seems like a good percentage. Commercial prospects are practically nil.

French Somaliland presents a similar market picture, on a smaller and poorer scale. There is only one town, and that has an inadequate electric supply. To operate a 4-cu. ft. electric (Continued on Page 15, Column 1)

The Suez Canal—A Busy Waterway



Always busy, the Suez Canal was doubly so when George Taubeneck passed through it on his world trip for ships full of Italian soldiers returning from Ethiopia crowded its banks. Above: Smaller craft in the canal. Below: Maintenance or fortification?

In the Roadstead at Aden, Arabia



"A papier mache stage set for a romantic musical comedy," George Taubeneck calls Aden, with the grim majesty of the mountain Shum Shum jutting up out of the sea. Above: A view of the harbor and homes. Below: One of several British destroyers in the harbor.

Around the World

With George F. Taubeneck

(Continued from Page 14, Column 5)
refrigerator there would cost about 60 rupees (\$25) per month.

British Somaliland, which has a population of 50 white men, all government officials and all ill paid, boasts but one power generating plant (110-volt current). Because of possible overload, no electric refrigerator is allowed on the lines.

Outside of a few private plants (Delco or German Diesel) there is no electricity available anywhere else in

Arabia

No air conditioning installations have been made as yet in this territory, although comfort cooling is badly needed. When we told Mr. Bethell about the Crosley Coolrest, he sat right down and ordered one at once.

Following is a table of imports of refrigerators into Aden since the first box came in, evaluated in rupees (a rupee is approximately equivalent to 40 cents, U. S. money).

Imports	1930/31	1931/2	1932/3	1933/4	1934/5
From United Kingdom	85	2,950	6,930	*	1,555
From U. S. A.	18,643	18,262	22,339	5,759	11,955
From Switzerland	7,800	*	*	*	*
From Other Countries	*	40	*	60	*
Total rupees	26,528	21,252	29,269	5,819	13,510

*Export figures not available.

How They Sell in Egypt

By Appointment

Gregorakis & Co., distributor for Frigidaire in Egypt, is easily the biggest refrigeration firm in that hot country. And its biggest customer is the royal Egyptian government.

For many years Mr. Gregorakis has also been the Buick distributor in Egypt, and that's how he got his "in" at the royal palaces. The recent deceased King Fuad liked Buicks, and he liked Mr. Gregorakis. Each year Fuad bought several new Buicks; likewise many of his henchmen, his councillors and advisors bought Buicks too.

A procession of state was really something for a General Motors executive to see, for it was practically a Buick parade. And when Mr. Moonney or any of the bigwigs of General Motors export division came out to the land of the pyramids and the Sphinx, Mr. Gregorakis was generally able to arrange a procession of state for their edification.

When Frigidaire came along, King Fuad thought well of that, too; and before Mr. Gregorakis had finished with him, the King had purchased more than 70 units for his palaces! He bought the works: water coolers, bottle coolers, ice cream cabinets, meat coolers, and individual household refrigerators for the guest rooms.

Just before his death he ordered a 12-cu. ft. job installed by his bed, for keeping serums, food, and drink.

Once Frigidaire had become "by appointment" the King's refrigerator, it was simple to go down the line and sell Frigidaire to members of the Court and the Egyptian government.

New Prospects

That's the way you should work in Egypt if you want to sell an article which calls for a real expenditure of money, like an automobile or an electric refrigerator. There are a lot of people in Egypt (1,500,000) but less than 10,000 have income above the bread-and-water level.

Mr. Gregorakis, a handsome, high-strung individual who practically lives in his beautiful showroom, has it all doped out. You segregate the possible prospects, then you plant your product with the leaders of those small groups, and from then on it's simply a matter of going on down the line.

He has had the Buick agency for 18 years, the Frigidaire agency for six. J. E. BENGHIAT, a live wire who would be a crack sales manager in any league—including the American—handles the refrigeration end of the business. Mr. Gregorakis runs the company, and the automobile division. They have the finest showroom in Cairo for any product.

A product which requires servicing and that means both automobiles and refrigerators—predicates a risky business, declares Mr. Gregorakis. He has seen a lot of competition come and go, the latter because they didn't understand this fundamental principle.

First thing a distributor must do who wants to stay in business is set up a thoroughly good service department, with a well-trained staff and an adequate supply of parts. Then, and not until then, can he think about selling.

In the export field, both Messrs. Gregorakis and Benghiat will tell you, good will is the most valuable asset of a product. The distributor must take care of the owner, must keep the product in shipshape order, if he intends to stay in business for any length of time.

Long Hours

These two gentlemen observe no set hours. They come down early and stay until late at night—taking, of course, the usual early afternoon siesta of the tropics.

"There isn't anything else to do in Cairo but work," they explain with a smile.

During June, July, and August, business comes to a virtual standstill. It's too hot and dusty for work or relaxation in Egypt. Prospects all leave town. So the only thing to do is lock up and go off on a cruise somewhere. But during the remainder of the year there's always business to be had—if you know how, and if you know the right people.

In Egypt, business conditions depend almost entirely on the price of cotton. Things were pretty tough from 1930 through 1933. But now, thanks to Roosevelt's cotton curtailment orders in America, and to favorable trade deals engineered in Germany, business looks pretty good.

There isn't much competition from ice in Egypt, although it's very cheap. On a contract a commercial ice user can get a 54-pound block for two-and-one-half piastres (12 cents) or even less.

It's the firm belief of Gregorakis and Benghiat that if the ice manufacturers would expend their energies on promotion instead of mutual destruction, the electric refrigeration business would quickly double itself.

Why? Because 92% of Egypt's population consists of Egyptians, whereas less than one per cent of all electric refrigeration sales are made to Egyptians—the reason being that the natives who could afford refrigeration don't understand the need of it.

The big job to be tackled is education; and a healthy forward-looking ice industry would be a big help in that direction.

Air conditioning? They need a leader. Mr. Gregorakis offered to install a room cooler in King Fuad's bedroom free of charge just to get things started, but Fuad would have none of it.

"That's an artificial way to live," said the King, dismissing the subject with finality.

Perhaps the young new king Farouk may lead the way for air conditioning in Egypt.

Loss of Caste

Mr. Benghiat, not satisfied with simply working the government territory, bethought himself of a new field for prospects: the excellent University of Cairo.

First he went out to this beautiful campus and called on the medical and physics branches. They bought refrigerators for keeping serum and apparatus at proper temperatures.

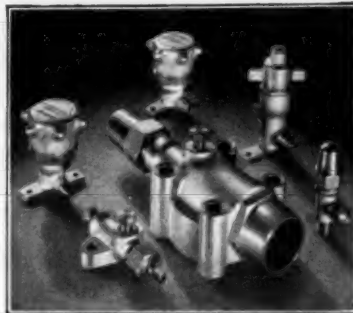
Next step was to sell the professors who headed these departments house-

PERFECTION

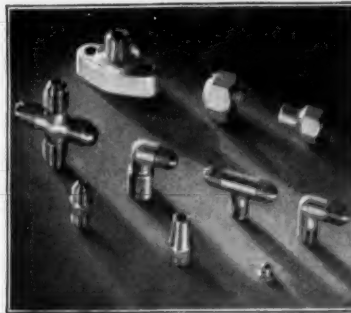
Refrigeration Parts Are DEPENDABLE



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Service

A while back we mentioned the stress Mr. Gregorakis lays on service. We can take his service corps as an example.

Most of his men are not highly educated. Most of them have been with him since 1926. It took patient effort to teach them; and at that, they have learned chiefly by experience.

A Greek heads the service organization; his assistants are Greeks, Italians, and Jews. Another Greek heads the service organization in the Gregorakis branch in Alexandria. The dealers in Port Said, Ismailia, Suez, Mansourah, Assout, and Heliopolis are supplied with service men who have learned their trade in the Cairo organization.

Small Market

H. D. McClellan, merchandising manager of the British Thompson-Houston Co. in Cairo, doesn't think much of the Egyptian market for refrigerators.

He showed me some figures supplied him by the Le Bon electric power company (a private utility owned by Belgian and French interests, with concessions for Cairo, Port Said, and Alexandria) of the number of refrigeration machines on its lines. The figures:

Cairo—30 commercial, 214 household, total 244. Alexandria—19 commercial, 109 household, total 128. Port Said—eight commercial, 28 household, total 36.

(Mr. Benghiat of Frigidaire says these figures are small because they do not contain the units sold to the king and government, which are lumped together with other current-consumers in the palaces and government buildings on a flat rate.)

Mr. McClellan agrees with the gentlemen from Gregorakis & Co. that Frigidaire leads, General Electric (BTH) is runner-up, and nobody else seems to be in the race.

BTH refrigerators are sold entirely by advertising and display. At the Cairo showroom there are salaried floor men, and a salesmanager on salary plus commission. Dealers in other Egyptian cities sell on consignment.

There is no washing machine business. (Concluded on Page 16, Column 1)

PERFECTION REFRIGERATION PARTS CO. HARVEY, ILLINOIS



TEMPRITE INSTANTANEOUS BEER and WATER COOLERS Detroit Michigan

McCord Refrigeration and Air Conditioning PRODUCTS

- CONDENSERS
- COMMERCIAL EVAPORATORS
- DOMESTIC EVAPORATORS
- COMFORT COOLERS
- MARKET COOLERS
- AIR CONDITIONING SURFACE
- UNIT HEATERS
- BLAST HEATING SURFACE
- CATALOGS ON REQUEST

McCORD RADIATOR & MFG. CO. DETROIT, MICH.

Egypt's Largest Electric Refrigeration Dealership



Left: Entrance to the biggest refrigeration firm in Egypt—Gregorakis & Co., Frigidaire. The company is Buick distributor as well. In the doorway is J. E. Benghiat, refrigeration manager. Center: George Taubeneck gets a shine as he and a part of the Benghiat family stop at a sidewalk cafe in Cairo. Right: The Benghiat brothers.

Around the World

With George F. Taubeneck

(Concluded from Page 15, Column 5)
ness to be had, and very few vacuum cleaners are sold. Current comes too high for electric ranges to be considered. One G-E dishwasher has been sold to a doctor.

Radio, however, is going strong. It's a profitable business, too—divided up chiefly between BTH, RCA-Victor, and the ever-present Phillips.

Two Egyptian broadcasting stations are putting on good programs, and creating a market for small 5-tube sets (4-tube sets don't work in Egypt, for some reason). One broadcasting station is at Abu Zaabel, with an alternative transmitter in Cairo. The other broadcasts from Alexandria, with a relay in Upper Egypt.

The BTH 5-tube set retails for 10½ pounds (about \$54) with 10% off for cash.

Mr. McClellan thinks it noteworthy that Tintah, the third largest city in Egypt, has no electric refrigerators.

Entirely populated by native Egyptians, the city has only recently begun to enjoy 24-hour electrical service. Formerly the Le Bon Company supplied electricity—at high rates—only at night.

BTH has also found the problem of getting good salesmen practically hopeless. Once they trained a crew of outside salesmen and sent them out to call on boarding houses. The project flopped dismally.

Living in Egypt are Egyptians, Syrians, Greeks, Italians (and Jewish members of all of these races), plus a very few British, and Americans. The British subjects are almost exclusively army men, who come to Egypt for two year periods. The rental scheme, which has been found so successful among this type of prospect in India and Arabia, has not been tried in Egypt.

Time payment sales are out of the question in Egypt because the seller has no recourse to law in the case of default. Once the refrigerator is installed, it becomes a part of the property, and cannot be repossessed.

Nevertheless, about 50% of the refrigeration equipment brought in is sold on credit. The purchaser signs a note for a year or 18 months and can be sued if he doesn't pay.

Miscellany

Gas (manufactured from coal) is fairly expensive in Egypt. Inasmuch as Egyptian servants simply cannot learn to shut the gas off—which means very high bills indeed—few gas ranges are sold. Kerosene and charcoal are the chief fuels for cooking.

A few electric ranges have been sold to factory managers with private power plants, who pay nothing for the electricity they pipe over to their living quarters.

Electric teakettles, normally a popular British-Thompson-Houston item, do not sell in Egypt. The large Italian population drinks no tea, and everybody else goes out to the innumerable coffee shops for beverage.

Electric irons are sold widely, but these are mostly low-priced German irons. Egypt is said to be essentially a price market; quality seems to count for little.

Air Conditioning

Air conditioning is surely and sorely needed in Egypt; but when prospects hear a price quotation, their hands go up, and their backs turn.

The cinemas (picture shows to us Americans) have sliding roofs which

expose one-third of the roof area to the stars on hot nights. There are also open-air theaters, where patrons sit at tables and eat and drink while the latest importation from Hollywood and Paris appears before their eyes. These open air theaters are located at city outskirts. Many cinemas close entirely for the summer. These latter should be real prospects for air conditioning.

The wagon-lits (equivalent of Pullman Cars) need air conditioning badly. Dust and heat are frightful—just ask me for corroboration—in the summer. It is rumored that Wagon-Lits Internationale (the French owners) are interested.

First air-conditioning installation in Egypt apparently will be in a building which houses the chemical division of the Egyptian Administration, which has advertised for bids.

Power Rates

A special rate for refrigerators is offered to Cairo users by the Le Bon Company. It works out like this:

Between 5 p.m. and 11 p.m. the rate is 23 millimes (11½ cents) per kilowatt hour. Rest of the day it's 16 millimes (8 cents) per kilowatt hour. In Port Said these rates are approximately the same, although in Alexandria, if you know how, it's not hard to get lower rates. Fact is, if you go about it right, you can even get a 10-millime rate (5 cents per kwh.) in Cairo.

To tally the current in these cases, the Le Bon Company installs a special meter with a clock on the refrigerator.

The average user (who has a 7-cu. ft. model) pays about one pound (\$5) per month for current.

Power supplied is 40 cycles, single phase. The Le Bon concession will run for 12 years more, after which company officials have scant hope for renewal. Hence improvements in distribution facilities, or long-range promotion, do not interest the company. They're after all they can get while the getting's good.

Three Sundays

Three Sabbath days are observed in Egypt: Friday is the Mohammedan holiday, Saturday the Jewish, and Sunday the Christian. Hence the shops must stay open seven days a week. That knocks out the week-end quantity purchase argument for buying a refrigerator. There are no week-end bargains.

Nor does the economy argument sound convincing in Egypt. Ice is very cheap. Fruit and vegetables are very, very cheap. Everybody goes to the market every day.

Furthermore, the orthodox Mohammedans who form so large a portion of the population, will not keep meat over night—it's against their religion. (Many Mohammedan and Jewish religious laws were originally hygienic in purpose. For instance, the Mohammedan must wash before he prays. The rule about not keeping meat over night was entirely justified when it was ordered, for that was before the days of proper refrigeration.)

So, you see, the distributor in Egypt has his problems.

But he lives in an interesting country.

Egyptian Agencies

Frigidaire: Gregorakis & Co., 17 Rue Kasr El Nat.
General Electric: British Thompson Houston Co.

Kelvinator: Mosseri, Curiel, & Co., Rue Emad el Dine, Cairo.

Apex: J. Calderon, Rue Emad El Dine, Cairo.

Coldspot: Thuillot Vincent & Co., Rue Soliman Pacha, Cairo.

Crosley: I. Gattegno, Rue Emad El Dine, Cairo.

Sparton: Grands Magasins Hannaux, Alexandrie.

Copeland: G. Zarb, Rue Fouad Ier, Alexandrie.

Egypt

Located in the northeast corner of the African continent, this tropical kingdom covers an area of approximately 383,000 square miles, including the Libyan Desert, the region between the Nile and the Red Sea, and the Sinai Peninsula.

Of course I arrived in Egypt during the wrong season, because the best time for a tour here, according to the natives, is between Nov. 1 and May 1, with January to the end of March the most delightful period.

The influence of the Libyan and Arabian deserts makes Upper Egypt a lot more of a heat-hole than the Delta, or lower Egypt. Cairo, with a rainfall of two inches, has a temperature in summer of 85° F. and 58° in winter, the thermometer rising to 125° F. in the shade on the hottest days, they tell me. In Alexandria, however, the average temperature is 69° F., and in winter 60° F.

Four-fifths of the 14,177,864 population (7,058,073 males, and 7,119,791 females) of this interesting country are of ancient Egyptian stock.

Originally a part of the Turkish Empire, Egypt was placed under a British protectorate in 1914, but since the termination of that protectorate in 1922, and the signing of a new constitution in 1923, has been a sovereign state, supposedly free and independent (although actually the British government still pulls political puppet wires behind the scene, and perpetually uses Egypt for a military and naval base) ruled by the hereditary king of the family of Muhammad Ali.

The King appoints and dismisses ministers and, on the proposal of the Foreign Minister, diplomats. He has legislative power concurrently with the Senate and the Chamber of Deputies. Justice is administered by 91 Summary Tribunals, eight Central Tribunals, and two Courts of Appeal. There are also three Mixed Tribunals of First Instance with a Court of Appeal sitting at Alexandria, which has jurisdiction over civil matters between natives and foreigners, and between foreigners of different nationalities, or even between foreigners of the same nationality if the dispute relates to land in Egypt.

I've mentioned Cairo, Alexandria, and Port Said, the largest Egyptian towns, but there are others almost as interesting in slightly different ways. There's Beni-Suef, an important town 71 miles from Cairo; Tel-el-Amarna, a place of special interest with ruins explored only recently; Asyut, the largest and best built town of Upper Egypt, with 57,136 inhabitants; Abydos, supposed to be the first spot in Egypt which attracted settlers; Thebes, famous for temples and monuments; and Karnak, with the most wonderful pile of ruins you can imagine.

There are other ways of transportation and communication to these cities than the trains I mentioned a while back. Egypt estimates that it has 24,268 passenger cars, 1,252 buses, and 3,848 trucks. An aerial service from London via Alexandria has been in operation since 1929, and there is also a service from London to Alexandria only.

Essentially an agricultural country, Egypt's agricultural population forms about 62% of the whole; 12,226 miles of cultivated area lie in the valleys of the Nile and the Delta which have been the real Egypt for 60 centuries.

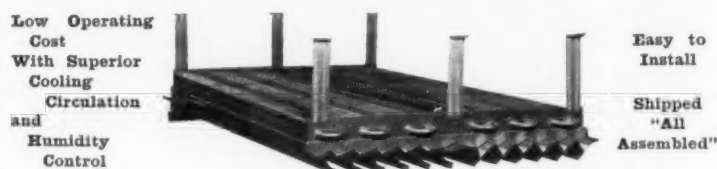
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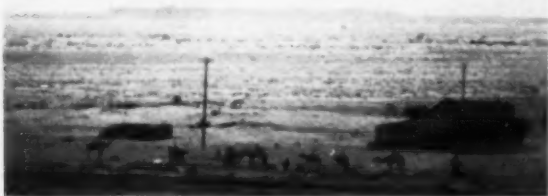
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Just a Few Steps from Ship to Desert



Left: Natives on the streets of Port Said. Boats are docked right at the end of the street; one may be seen at the upper right of picture. Right: On the Egyptian desert. The small figures in the foreground are camels.



COMMERCIAL Service Manual

By K. M. NEWCUM

Editor's Note: This is the first instalment of the COMMERCIAL SERVICE MANUAL written by K. M. Newcum, well-known to readers of the NEWS as the author of the MASTER SERVICE MANUAL which appeared first as a series of articles in the NEWS and later in book form.

The COMMERCIAL SERVICE MANUAL will run serially in the NEWS during the remaining months of 1936 and will be published as one of the books of The Refrigeration Library early in 1937.

While this is the first instalment of the series, it will be Chapter 3 of the book. The first two chapters in the book will deal with the general theory and fundamentals of refrigeration which have been published at frequent intervals in the NEWS.

Cylinders, Valves and Safety Devices Required for Refrigerants

Cylinders for use in shipping refrigerants are made in accordance with the regulations of the Interstate Commerce Commission and subject to the approval of the Bureau of Explosives.

Cylinders of both the so-called seamless (forged) and welded (cold drawn) construction are authorized by I.C.C. regulations. The forged cylinder, as the name implies, is hot forged in one piece, while the cold drawn cylinder is made from a sheet of cold steel and drawn cold. The forged cylinder is identified by its heavier tare weight.

Sulphur dioxide is classed as a non-inflammable compressed gas and may be shipped in steel cylinders, made in accordance with the following I.C.C. specifications: I.C.C. 3A300; 3B300; 4A300; 4B300; 3; 4; 25; 26; 150 and 38. Methyl chloride is classed as an inflammable compressed gas and may be shipped in steel containers covered by the following I.C.C. specifications: I.C.C. 3A150; 3B150; 4A150; 4B150; 3; 4; 25; 26; 150; 38.

Freon is classed as a non-inflammable compressed gas and may be shipped in steel containers covered by the same I.C.C. specifications as given for methyl chloride. The following are the exceptions to the above regulations:

1. Cylinder not exceeding $\frac{3}{4}$ -inch outside diameter or 4 fluid ounces capacity.
2. Machines or apparatus assembled for shipment containing not over 15 lbs. weight of gas or liquid for their operation, refrigerating machines of the self-contained type containing not over 25 lbs. weight of gas, and refrigerating machine of the remote-control type consisting of separate units shipped separately and each containing not over 25 lbs. weight of gas, under the following conditions:

- (a) All parts subject to gas pressure during shipment must be tested during the manufacture by interior pressure, and must show no leakage or indication of failure under the test. For liquefied gases the test pressure must be four times the gas pressure at 70° F.
- (b) The amount of liquefied gas must not exceed the allowable shipping capacity as described below.

Capacity of Cylinders

The allowable shipping capacity of any cylinder is determined by its actual water holding capacity. To determine the water capacity, fill the cylinder with pure water and weigh the cylinder plus the water. Then remove the water and weigh the empty cylinder. The difference is the actual water capacity.

To arrive at the allowable amount of refrigerant to be shipped in any cylinder use the following figures: For Freon multiply the water capacity x 1.19.

For SO₂ multiply the water capacity x 1.25.

For methyl chloride multiply the water capacity x .75.

For example, take a cylinder that weighs 120 lbs. empty and 243 lbs. when completely filled with water.

Its water capacity then would be 123 lbs. The cylinder would safely hold 123 x 1.25 or 153 lbs. of SO₂ and 123 x .75 or 92 lbs. of methyl chloride.

The allowable weight of refrigerant does not completely fill the cylinder. There is a space at the top for expanded gases. This space is very necessary to allow for temperature and pressure changes.

Overcharging or filling beyond the allowable capacity will not provide this expansion area and any increase in temperature and pressure may result in hydrostatic pressure. This hydrostatic pressure increases rapidly on increasing temperatures and may result in a violent rupture and serious damage to persons and property.

The weight of a cylinder must be determined when disconnected from all charging connections etc.

Safety Devices

Each cylinder, except those measuring less than 12 inches long exclusive of neck, containing compressed gas, must be equipped with one or more safety devices, approved as to type and location by the Bureau of Explosives and found to prevent explosion of the normally charged cylinder when it is placed in a fire.

Markings

Cylinder markings must be kept plain and cannot be altered except as provided in the regulations. Marking includes the proper I.C.C. number, as for example: I.C.C. 3A300, the serial number, the inspector's official mark (indicating who manufactured the cylinder), the name, mark or initials of the company for whom the cylinder was made, and the date of the original test or retest (as 3-34 for March 1934).

Valves

Cylinder valves must have complete approval by the Bureau of Explosives. For protection, a cap must be provided, except in some of the smaller sizes which are created for shipment.

Retesting

Cylinders must be given a retest every five years. This requires special equipment. If more than five years have passed since the last test date on the cylinder, it must be retested before it can be used again.

All cylinders having an outside diameter less than 2 inches and a length less than 2 feet are exempted from retest.

Tank Cars

Single unit or multi-unit cars for SO₂, Freon, and methyl chloride, are covered by I.C.C. regulations I.C.C. 106A500 and 105A300.

Labels

Diamond shaped labels of standard size, color, and printing must be used. Samples may be secured from the Bureau of Explosives. Green labels are prescribed for SO₂ and Freon. Red for methyl chloride. Shippers must furnish and supply the prescribed labels.

Baggage

Sulphur dioxide, Freon, and methyl chloride shipments as baggage are limited to cylinders not exceeding 4½ inches in diameter and 22 inches in length. I.C.C. regulations for freight apply.

Parcel Post

SO₂, Freon, and methyl chloride cannot be shipped through the mail. Further and more detailed information may be obtained from Bureau of Explosives, 30 Vesey St., New York City.

Much time and effort has been put into the development of safe equipment for the shipping and handling of refrigerants. Cylinder manufacturers are constantly striving to find better and stronger steels for refrigerant cylinders. Valve manufacturers are making rapid strides in the improvement of valve equipment. Manufacturers of safety devices are improving on the protection devices. All of this is done with one aim in mind—Safety.

With all of this thought and care, much is left to the judgment of the service man actually handling these charged cylinders in houses and places of business. More details of the construction of cylinders, valves, and safety devices are given to further acquaint the service man with their use and function.

Cylinders, Valves and Devices

The forged cylinder is hot forged out of a one piece billet and then the rough edges are trimmed off the top. The bottom of the cylinder will stand upright.

The open top is then hammered over to shape and a neck ring is placed over this neck. The closed top of the cylinder is then tapped for the valve thread. This tapping is done with the best of equipment to assure good clean threads, and on the proper taper. The standard taper is $\frac{3}{4}$ of an inch per ft. The standard thread size on the large cylinders is $\frac{3}{4}$ of an inch.

The cylinders are then given a hydrostatic test, marked and inspected, and a report of the test inspection filed with the Bureau of Explosives by Authorized Inspection Agency.

The welded cylinder is drawn from a cold steel sheet by several forming operations. One type cold drawn cylinder is drawn with the top closed and shaped to form a neck for the neck ring and cylinder valve. A bottom is welded to this sheet and a foot ring installed to act as a stand.

Another method of fabrication is to weld a concave bottom onto the sheet. The concave bottom acts as a stand. Still another method is to draw the sheet closed on the bottom then form the top over as a neck. This type cylinder is one piece and seamless.

The cold drawn cylinder is subject to the same tests and inspections as the forged.

Cylinder valves are machined with the greatest amount of precision from hot forged brass bodies. The stems, packing, packing nuts and other parts are made of metals suitably hard to withstand the rough service given them and from metals that are least affected by the action of the refrigerants. They are made in several different sizes and types to conform with the specifications of the several refrigerant manufacturers for the refrigerant involved and the type of duty expected.

For cylinders over 30 inches in length, the cylinder valve is usually fitted with a fusible metal plug to provide safety, and in such a case the bottom of the cylinder proper is also equipped with a fusible plug. It is not uncommon to find valves on smaller cylinder fitted with fusible metal plugs. It is good practice to provide safety beyond the actual limits required by law.

Fusible metals used in safety devices on refrigerant cylinders and in cylinder valves have a melting temperature of approximately 165° F.

Although the actual melting point of fusible metal is 165° F. it may become plastic enough to extrude at temperatures slightly below this point. Heating of cylinders should be limited to at most 120° F. and then only when the cylinder valve is connected to charging equipment and the valve is open allowing the expanded gases to escape as rapidly as they are formed by the cylinder.

It is suggested that an open flame not be used to heat the cylinder. By consulting the pressure temperature chart, the rapid increase in pressure with the application of heat may be noted for the various refrigerants.

Complete specifications on cylinders, cylinder valves, safety devices etc. are herein given on the equipment of several refrigerant manufacturers so that each piece of equipment may be studied to determine its proper charging capacity, arrangement, and types of safety devices, cylinder valve thread specifications, operating stem size and other important details.

(To Be Continued in Next Issue)

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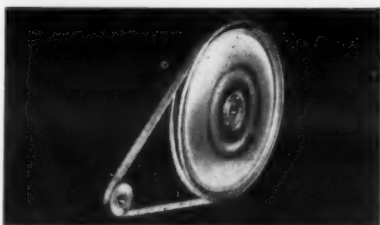
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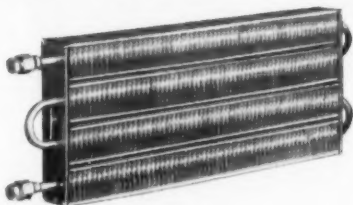


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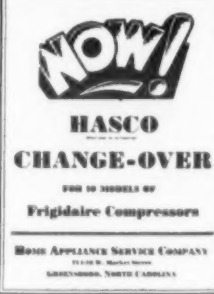
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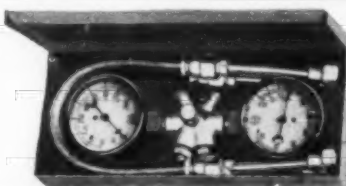
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Joint sponsors with English and Barnhart on this electrical home are the Westinghouse Electric & Mfg. Co., The Duquesne Light Co., and the Electric Leagues of Pittsburgh and Beaver Valley.

From the all-electric kitchen to the automatic garage doors, regulated by Westinghouse motors, the home includes every modern electrical device and appliance. Exterior water proof electrical outlets at the entrance, side porch, and on the roof decks, eight telephone jacks, three radio aerial outlets, a burglar light switch, 65 lighting outlets, flush type ceiling fixtures with flat glass reflectors, and 15 installed electric motors are a few of the features of this house.

Kitchen Lighting

In the kitchen, the light provided by large windows is augmented by carefully placed lighting which even includes lamps in the oven of the electric range. Seven appliance outlets have been built into the kitchen, and 11 portable outlets allow for such appliances as toasters and percolators.

The electric dishwasher and sink combination with their enameled and Monel-metal surfaces are placed beneath one of the windows. Drainboards on either side are covered with Micarta. Against the opposite wall are placed the electric range, a working unit, and an electric refrigerator.

Walls of the kitchen to the ceiling line, as well as the door leading to the dining room, are covered with brightly colored Micarta with polished aluminum strips.

At the extreme end of the kitchen is a breakfast nook arranged with cabinets, convenience outlets, and a handy clothes chute.

Construction of Building

Among the early projects of the house-building was the drilling of a well to provide an abundance of pure water. Exterior walls of the garage and house are cinder block construction, and chimneys, fireplaces, and bearing partitions of brick. All lintels are of structural steel shapes, two and one-half tons of steel being used. The exterior wall surfaces are covered with waterproof cement stucco finished in white color and glazed.

An electric motor operated by magnetic contact from the owner's car chassis permits the opening and closing of one of the sectional garage doors only by operation of the owner's machine and by no other car without adjustment.

Entrance from the front door, which faces the east, is into a well-lighted entrance hall from which an exposed stair railing of painted steel with a polished aluminum hand rail leads to the second floor. Floors of the living room, as well as stair treads, are of oak; walls and ceilings are of painted plaster.

Living and Dining Room

In the combined living and dining room, 15x28 ft., the central point of interest is the real fireplace and mantle. Micarta is used lavishly in its construction.

Walls of this two-purpose room are covered almost to their full height with prima-vera flexwood wall covering, which is finished in natural color. Above the flexwood, walls and ceiling are painted in a color that adds to both the natural and artificial lighting. From this room, doorways lead to the side porch or to the kitchen located near the dining portion of the room.

In the basement is a "Rumpus Room," a play spot the same size as the living-dining room. Its walls are of brick and concrete with steel sash and cement floor. A wood fireplace adds to the decorativeness of the room's design. Insulating board in panel design covers the ceiling and deadens the playroom noise.

In the laundry room, a work table provides storage space for electric washer and ironer, and laundry trays are encased in cabinets to make possible the daily washing and ironing upon a "continuous process." There is a telephone connection in the laundry as well as a radio outlet. Beneath the laundry stairs is a complete bathroom with shower arrangement.

Upstairs, the master bedroom, 14 ft. 3 in. x 16 ft. 6 in. has an opening on the roof deck directly from the room. Although the rear bedroom has no roof deck, the guest room offers one

which extends over the entire two-car garage.

Two tones of Micarta on the walls, and colored plumbing fixtures add color to the bathroom. Behind full-sized doors of Micarta are the electric heater and towel dryer, and linen closet and clothes chute. All fittings are of aluminum strip, and the floor is covered with inlaid rubber.

A metal railing similar to the one in the entrance hall provides protection at the stairwell leading to the penthouse or solarium.

A fireplace here adds a different and cheery note with its new type of shelf supported with nicked hanger. Eight large windows and a large door flood the room with light. Walls and ceiling are of painted plaster.

Letters from Service Men

Want Service Information on G-E & Majestic Units

Wrigley's Service Shop
Refrigerator & Radio Service
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Roslyn, Pa.

July 29, 1936

Have just received my first three copies of the NEWS under my recent subscription. Am looking forward to future copies as issued. Thanks.

Just now I'm interested in Mr. Herman Millman's letter to you in the July 15th issue, inclosing 10 cents and requesting copy of Aug. 16, 1933 issue covering the servicing of Majestic Hermetic Refrigerators. I am doing likewise, but is this price right? If not, send copy to me anyhow and difference will be rectified. Is there any issue covering this same information on G. E. Hermetic units? If so would like to have a copy also.

Thanks in advance for your cooperation.

Enter my name on your catalog mailing list.

Answer: Yes, copies of the issue containing information on servicing Majestic Hermetics are available at 10 cents, but we have not published such information on G-E sealed units.

Wants to Become a Factory Service Man

Please send ELECTRIC REFRIGERATION NEWS to new address. Please put my name on mailing list for catalog.

Could you give me information how to become factory service man.—Roy Johns, 1366 E. 55th St., Chicago, Ill.

Finest and Best

Due to the fact that I have been busy, and this is the first chance I have had, I want to say your magazine is the finest and best paper anyone wants to read.

Also would like to have my name placed on your mailing list for catalogs.—L. Fellerman, 629 W. 170th St., New York, N. Y.

Dealers and Service Men Need Catalogs

H. S. Johnson
Electrical Contractor
Motor and Refrigerator Repairing
Service and Repair All Makes
Electric Supplies of All Kinds
Delta, Pa.

June 30, 1936.

Gentlemen:

Will you please place my name on your mailing list to receive catalogs of electric refrigeration supplies.

H. S. JOHNSON.

Enclosed find check for \$5.00 for a two years' subscription to REFRIGERATION NEWS. Please place our name on your mailing list for bulletins of new products on the market.—C. D. Forney, president, Hardcastle & Forney, Inc., Hanson St., Easton, Md.

Please find enclosed money order for \$5.00 for one year's subscription and one book, the MASTER SERVICE MANUAL. Also put me on your mailing list for refrigeration catalogs.—Charles E. Wood, 364 Forest Ave., Dayton, Ohio.

Enclosed please find money order for three dollars (\$3.00) for one of the MASTER SERVICE MANUALS.

Please place my name on your Catalog Mailing List.—Gerhard Jurkat, 909 Park Ave., Hoboken, N. J.

We are a subscriber to the ELECTRIC REFRIGERATION NEWS and wish to be put on your catalog mailing list as per your advertisement of a few weeks ago.—S. S. Wilson, Bocoek-Stroud Co., P. O. Box 1700, Winston-Salem, N. C.

Will you please have the name of our firm placed on your catalog mail-

ing list. Thank you.—Coleman Appliance Store, 145 S. Western Ave., Chicago, Ill.

Please find check attached for \$3.00 for which please send me copy of the MASTER SERVICE MANUAL. Also please put my name on your catalog mailing list.—A. M. Burt, Valdosta, Ga.

Please place our name on your catalog mailing list.—S. Hope, H. & H. Electric, 156 Throckmorton Ave., Mill Valley, Calif.

Many thanks for the sample copies of REFRIGERATION NEWS. Am enclosing money order for one year's subscription also one copy of the MASTER SERVICE MANUAL, and if your catalog mailing list is not too crowded and you mail this far west I would like to be put on it.—A. E. Wyatt, Box 578, Duncan, B. C., Canada.

I am a subscriber of ELECTRIC REFRIGERATION NEWS and an independent service man. Will you please put me on your catalog mailing list.—Walter F. Seibert, Rhenebeck, N. Y.

Please enter my name on your catalog mailing list.

I have been a reader of your paper for six months and look forward to each issue.—J. E. Crum, 938 Saxon Ave., Akron, Ohio.

Please send me a copy of MASTER SERVICE MANUAL and a year's subscription for your ELECTRIC REFRIGERATION NEWS. Enclosed find money order to pay for same.

I am a service man and would like my name on your catalog mailing list. Thank you.—Adolph Marino, 20-11 130th St., College Point, N. Y.

Enclosed is money order for \$3.00. Please send me MASTER SERVICE MANUAL.

Kindly enter my name on your catalog mailing list.—A. B. Fisher (Refrigeration Technician all makes of Electric Refrigerators Installed—Serviced—Repaired), 2735 Rosina Ave., Covington, Ky.

Channon Adds Line of Fans & Blowers

CHICAGO—New lines recently added to the stock of the H. Channon Co., refrigeration and air-conditioning parts distributor here, include products of the National Fan and Blower Corp.

New stock includes air circulators of the wall and floor types, propeller exhaust fans, squirrel cage fans, air washers, unit heaters and coolers, and other air-conditioning equipment.

Other new lines handled by H. Channon Co. include Tuttle and Bailey "Airline" and "Flexaire" grilles, and Leland Electric Co. motors.

3 New Distributors for Virginia Smelting

WEST NORFOLK, Va. — Virginia Smelting Co. recently appointed three new outlets to handle its sulphur dioxide and methyl chloride.

They are: Machine Tool & Supply Co., 215 E. Second St., Tulsa, Okla.; Refrigeration Supplies Distributor, 202-4-6 22nd St. South, Birmingham, Ala.; Radio Supply, Inc., 46 Exchange St., Salt Lake City, Utah.

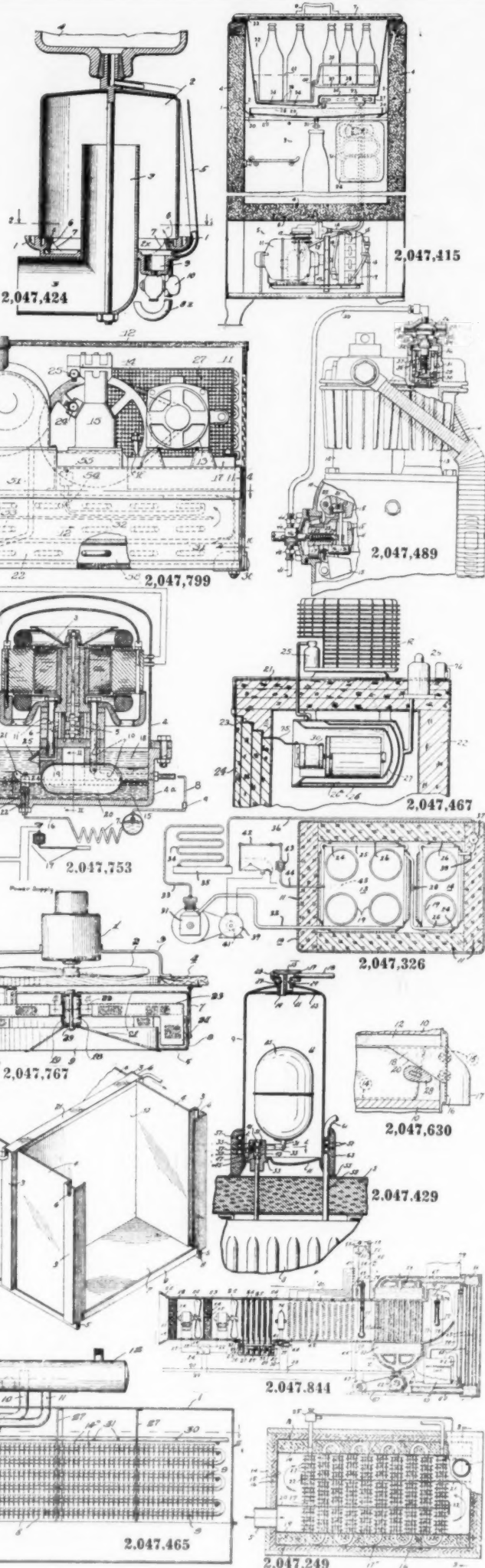
Norge Representatives See Slide Films of Fall Selling Plans

DENVER—Instructing sales representatives in the use of slide films as part of the fall merchandising program to acquaint retailers with new methods of merchandising Norge refrigerators was a feature of the two-day conference held recently for factory representatives of Norge Corp. in this territory.

Sales representatives from Colorado, Wyoming, New Mexico, and Western Nebraska attended the meeting, reports I. H. Parks, treasurer of the Auto Equipment Co., Norge distributor for the district.

W. A. Seiler of the Cramer Krasselt advertising agency, who was among the speakers, urged the field representatives to emphasize to prospective customers, either by advertising or by personal talks, the value of what household electric appliances produced, rather than trying to sell machines alone.

Borg-Warner executives and department heads who attended the meeting, included: John H. Knapp, vice president and director of sales; James A. Sterling, advertising manager; M. J. O'Hara, range division sales manager; E. R. Bridges, washer division sales manager; R. S. Beale, heating division sales manager; Ira Reindel, chief engineer; R. E. Dinsmore and A. H. Kitson.



2,047,799. AIR CONDITIONING APPARATUS. Clarence A. Rodman, Fort Wayne, Ind., assignor to Justin W. Macklin, Cleveland, Ohio, trustee. Application Aug. 26, 1933, Serial No. 687,070. 10 Claims. (Cl. 62-126)

2,047,844. AIR STERILIZING AND CONDITIONING APPARATUS. David E. Wehner, Allison Park, Pa. Application July 15, 1935, Serial No. 31,534. 2 Claims. (Cl. 257-9)

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

N. Y. & Pennsylvania Again Lead in Sale Of Refrigerators

The following report is of sales to distributors and dealers by 15 member companies of the National Electrical Manufacturers Association. The complete report of sales appeared in the last issue.

States and Territories	Household Low Sides (Line 23)
Alabama	2,454
Arizona	654
Arkansas	1,511
California	16,568
Colorado	1,987
Connecticut	3,153
Delaware	362
Dist. of Columbia	2,016
Florida	2,267
Georgia	5,252
Idaho	1,204
Illinois	15,164
Indiana	5,943
Iowa	3,104
Kansas	2,838
Kentucky	3,397
Louisiana	1,987
Maine	1,202
Maryland	1,882
Massachusetts	7,940
Michigan	10,386
Minnesota	2,907
Mississippi	1,214
Missouri	6,511
Montana	1,322
Nebraska	2,013
Nevada	323
New Hampshire	686
New Jersey	8,148
New Mexico	541
New York	22,709
North Carolina	4,618
North Dakota	328
Ohio	15,660
Oklahoma	1,539
Oregon	2,302
Pennsylvania	20,110
Rhode Island	847
South Carolina	1,815
South Dakota	713
Tennessee	4,074
Texas	10,136
Utah	1,571
Vermont	618
Virginia	3,052
Washington	4,403
West Virginia	2,946
Wisconsin	3,223
Wyoming	408
Total United States	216,008
Canada	3,748
Other Foreign (Including U. S. Possessions)	16,097
Total For World	235,853

A. M. Sweeney Offers G-E Salesmen Prizes for Best Use of New Sales Idea

CLEVELAND—Sixteen prizes totaling \$250 are being offered General Electric refrigerator salesmen in a contest sponsored by A. M. Sweeney, national sales manager.

The contest is for the best refrigerator presentation, using a sales formula recently made available to G-E salesmen. The purpose of the contest is to ascertain how this sales formula is being used by G-E representatives in the field and to locate the best presentations so they may be made available to G-E salesmen.

First prize is \$100; second \$50; third \$25; fourth and fifth \$10; and sixth to sixteenth \$5 each.

Crosley Takes Out Group Insurance for All of Firm's Employees

CINCINNATI—Crosley Radio Corp. has completed a contract with the Aetna Life Insurance Co. at Hartford, Conn., which provides for group life, health and accident insurance for all employees of the company. By this plan, approximately 4,000 persons are eligible for group insurance, including all factory and office workers, salesmen, as well as employees and artists of WLW and WSAI, which are owned by the Crosley Radio Corp. The plan went into effect Aug. 1.

By this contract, low rates are made possible for the employees because the company pays a substantial percentage of the insurance costs.

The insurance carries weekly benefits in case of sickness or accident and also provides for visiting nursing service to the homes of insured employees, Mr. Crosley stated.

Patents

Issued July 14, 1936

2,047,429. APPARATUS FOR COOLING FOOD STORAGE SPACES. John R. Ballard, San Francisco, Calif., assignor to Bal-Rod, Inc., San Francisco, Calif. Application Oct. 23, 1931, Serial No. 570,641. 18 Claims. (Cl. 62-101)

2,047,326. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio. Application Jan. 31, 1935, Serial No. 4,281. 7 Claims. (Cl. 62-99)

2,047,415. REFRIGERATOR. Anthony G. Horvath and Earl Eickmeyer, Dayton, Ohio, assignors to The Dayton Pump & Mfg. Co., Dayton, Ohio. Application Nov. 20, 1933, Serial No. 698,738. 16 Claims. (Cl. 62-116)

2,047,424. CENTRIFUGAL APPARATUS FOR CLEANING AND CONDITIONING AIR. Herbert McCormack, Howey-in-the-Hills, Fla. Application July 3, 1933, Serial No. 678,829. 6 Claims. (Cl. 183-21)

2,047,429. REFRIGERATING APPARATUS. Lawrence A. Philipp, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich. Application Nov. 26, 1934, Serial

No. 754,706. 7 Claims. (Cl. 62-115)

2,047,462. REFRIGERATING CABINET. Glennon J. Doyle, Clayton, Mo., assignor to C. Nelson Mfg. Co., St. Louis, Mo. Application Dec. 13, 1934, Serial No. 757,255. 12 Claims. (Cl. 62-95)

2,047,465. COOLING APPARATUS. Ezra H. Ford, Syracuse, N. Y. Application Feb. 16, 1934, Serial No. 711,543. Renewed Dec. 19, 1935. 10 Claims. (Cl. 257-184)

2,047,467. REFRIGERATION APPARATUS. Albert R. Golrick, Cleveland Heights, and Julius H. Hildebrandt, Cleveland, Ohio. Application July 22, 1930, Serial No. 469,806. Renewed Sept. 10, 1935. 14 Claims. (Cl. 62-114)

2,047,489. UNLOADING MECHANISM FOR COMPRESSORS. George F. Pfeiffer, Quincy, Ill., assignor to Quincy Compressor Co. Application April 30, 1935, Serial No. 19,098. 9 Claims. (Cl. 230-26)

2,047,630. REFRIGERATION. Robert Lay Hallock, Larchmont, N. Y. Application May 16, 1934, Serial No. 725,845. 7 Claims. (Cl. 62-108.5)

2,047,753. REFRIGERATING APPARATUS. Frank H. Stiening, Mount Lebanon, Pa., assignor of one-half to Elmer A. Hamburg, Pittsburgh, Pa. Application Aug. 3, 1934, Serial No. 738,225. 3 Claims. (Cl. 62-115)

2,047,767. HUMIDIFIER. Russell J. Byrd, Waxahachie, Tex. Application Dec. 4, 1933, Serial No. 706,914. 11 Claims. (Cl. 261-104)

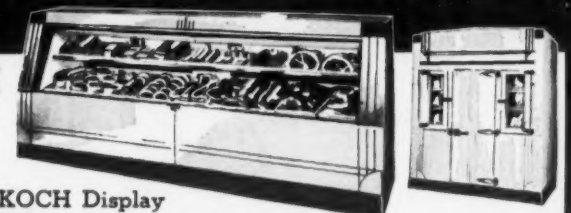
The Buyer's Guide

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KOCH Display Cases Have 4-in. Corkboard Insulation, Triple Plate Glass, and Are Porcelain Clad

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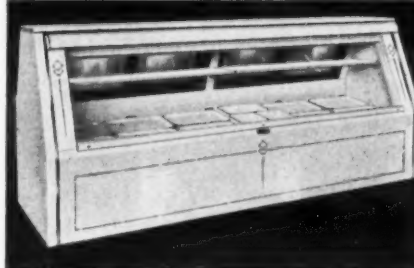
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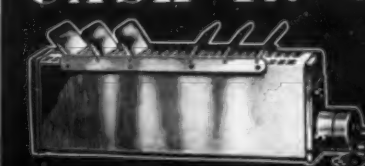
This De Luxe Refrigerator Display Case is one of a number of popular Leitner Models that we make. We lead in design and production in this field. Co-operation gladly furnished Dealers and Distributors in meeting the needs of their trade. Estimates and designs furnished for special construction jobs.

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